

**ANALYSIS OF THE ENVIRONMENTAL PROACTIVITY STRATEGIES IN USE IN THE
ZIMBABWE POULTRY VALUE CHAIN**

BY

VIMBAINASHE MAKOMBE

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DECLARATION

This project report is my original work and has not been presented for a degree or any other award in any other University.

Ms. Vimbainashe Yvette Makombe.

C50/63122/13

Signature  Date 05-11-14

Declaration by the supervisors

We hereby certify that the candidate under our supervision carried out the work reported in this project report.

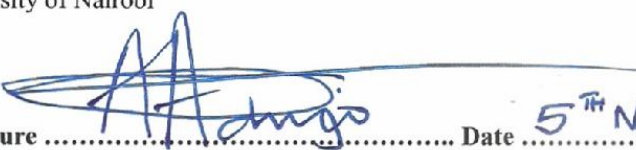
Prof. Evaristus Irandu

Department of Geography and Environmental Studies
University of Nairobi

Signature  Date 5/11/14

Dr. Alice Oluoko-Odingo

Department of Geography and Environmental Studies
University of Nairobi

Signature  Date 5th November, 2014

Dedication

This thesis is dedicated to my parents, Everisto and Annette Chikwatu, and to my younger sister Kudzai. Thank you for your endless love, support and encouragement.

Acknowledgement

Firstly I would like to thank Jehovah God for the many blessings and all the opportunities he has bestowed upon me.

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ABSTRACT

In recent years, poultry production in Zimbabwe has been on the increase. This increase has been accompanied by structural changes within the sector, giving rise to environmental concerns. It is imperative for the poultry value chain in Zimbabwe to step up its environmental proactivity practices in order to manage environmental concerns that arise from its expanding operations. With this in mind, the main objective of this study was to find out the environmental proactivity strategies that the poultry value chain companies are currently using to manage their environmental impacts and to find out the variables that affect the selection of those strategies. In order to perform the study, a questionnaire was distributed to 54 companies in the poultry value chain throughout Zimbabwe. The companies were grouped into four categories which are the commercial farms, stock feed manufacturers, service providers and lastly the processing companies. The first part of the questionnaire comprised of questions that sought to find out the factors that contribute to the adoption of the proactivity strategy used by the company. The second part of the questionnaire comprised a matrix of environmental practices compiled from literature that would then be used to classify each company to an environmental proactivity strategy. Descriptive and statistical analyses were employed in order to analyse the data. Based on literature, environmental proactivity exists on a continuum, with the reactive strategy at the lower end, the prevention strategy in the middle and environmental leadership at the top of the continuum. The study found that 18% of the firms in the poultry industry are using the reactive strategy whilst 70.3% are using the prevention strategy. Only 11% of the companies have the environmental leadership strategy. There is no statistically significant difference in the level of proactivity exhibited across the business type categories. However, based on the descriptive statistics, processors show a higher level of environmental proactivity. One factor that statistically significantly contributes towards environmental proactivity is the amount of focus placed on the management of certain environmental aspects. The presence of other operational systems and the presence of a sufficient environmental budget also influence the adoption of a particular proactivity strategy. The most influential stakeholders in pushing for environmental action in the poultry industry are the regulatory stakeholders and shareholder. These can push for better environmental practices within the industry. Players in the industry must be educated that environmental management is a step towards sustainable development. Consumers should be educated on their environmental rights so that they can be influential stakeholders in lobbying for improved environmental management. Further research should be done to quantify and classify the true impact of the poultry value chain operations on the environment.

LIST OF ACRONYMS

CBD	Commercial Business District
EMA	Environmental Management Authority
EMAS	Eco-Management and Audit Scheme
EMS	Environmental Management Systems
FAO	Food and Agriculture Organisation
HACCP	Hazard Analysis Critical Control Points
ISO	International Standards Organisation
SPSS	Statistical Package for Social Sciences
SAZ	Standards Association of Zimbabwe
ZPA	Zimbabwe Poultry Association

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Chapter 1 .0 Introduction

This chapter introduces the study with the background to the study, problem statement, objectives, hypotheses to be tested and the justification for the study.

1.1 Background of the study

Experts predict that by the year 2050 the amounts of meat to be produced in the world will double current production rates (FAO, 2007, p. xx). It has been noted that the strongest increase in meat production has been in the developing world. Since 1995, more meat and dairy products were produced in developing countries, as compared to what was produced in the industrial countries (FAO, 2007). The United States Department of Agriculture baseline projections have stated that developing countries will account for much of the increase in projected growth in global consumption of meat in the next ten years, this growth being pegged at 81% (Westcott and Trostle, 2013, p. 16). In a research conducted by the Food and Agriculture Organisation (FAO) in 2007, meat consumption in Africa only is expected to grow by 2.8% per year from 2007 to 2050 (Livestock Data Innovation Project in Africa, 2013, p. 5). This increase in the developing countries demand for meat is attributed to the high rate of population and income growth, coupled with increased urbanization and an expanding middle class (FAO, 2007).

Rising food prices are pushing consumers to choose cheaper sources of protein, like chicken and eggs. Thus the prospects of the poultry industry are improving in most of the world. This is supported by better market balances, on-going high competitive protein price and lower grain costs. This is particularly true for those companies that are operating in markets with a well-balanced supply/demand situation, such as the United States. According to FAO, the output of poultry meat in the year 2012 at 103.5 million tonnes represented an increase in poultry share of global meat production (excluding fish) to approximately 34, 3% (FAO, 2012, p. 7). With the increase in population in Africa, poultry consumption is on the increase and will continue to increase. For example, as of 2009, it was estimated that egg consumption per person in Africa was 2,3kg per annum. By 2050, total egg consumption for the region will approach 3.5 million tonnes per annum

(Livestock Data Innovation Project in Africa, 2013, p. 7).

In line with the above statistics, the Zimbabwe's poultry industry has shown massive growth since 2009 due to a steep increase in the demand for chicken meat and eggs. The major shift to poultry consumption has been brought about by significant increases in beef prices (ZPA, 2011). The ease with which chickens can be raised by each household as opposed to cattle has also contributed to the shift from beef to poultry. With formal employment offering inadequate income, a vast portion of the population is now involved in poultry production, as this type of enterprise promises returns within a short time. This has further caused the whole value chain to expand and this expansion will continue as more households and individuals turn to poultry production. According to statistics provided by the Zimbabwe Poultry Association, broiler day-old chick production increased from about 1,2 million in 2009 first quarter to over 5,5 million in the first quarter of 2013 (ZPA Report, 2013, p. 1). Such an increase has led to increased industrialization of poultry operations and the expansion of all the industries in the poultry value chain. Negative environmental impacts from poultry operations are therefore on the increase.

There is an increasing demand for all businesses to work towards minimizing negative impacts of their operations on the environment. The demand is even more for industries that continue to grow, such as the poultry value chain. As the concern for the environment is rising, companies are employing environmental strategies to enable themselves to remain afloat in the present day market that is increasingly being shaped by environmental factors (Esty & Winston, 2009). They aim to come up with strategies that reduce operations' negative impact on the environment whilst remaining economically viable. The environmental management strategies chosen by poultry companies are influenced by various factors, such as the stakeholders of the companies and the aspects of the environment that each company values the most and the resources that are at the disposal of the company. Not to be overlooked is the initial cost of implementing a strategy, especially in a fragile economy, such as the one faced by Zimbabwe over the past years. There is a need to understand how these factors have interacted in the choosing of environmental strategies employed by the poultry value chain companies in Zimbabwe.

1.2 Problem statement

Patterns in the consumption of meat have changed in Zimbabwe over the past 25 years. Formally beef was the main meat consumed, but it has dropped to providing only 35% of the total meat consumed in the country (Sukume and Maleni, 2012, p. 3). The gap has been covered by pork and chicken. The poultry industry has grown massively in recent years, with chicken now constituting approximately 50% of the meat consumed in the country (Sukume and Maleni, 2012, p. 3). In view of the indigenisation that has been taking place in the country, more and more households are turning to poultry production for the income as well as to increase household food security. Business people are turning to commercial poultry production and contract growing for already existing larger companies such as Irvines and CFI. This growth has been accompanied by structural changes within the sector, characterized by the emergence and growth of land-independent (industrial) farming establishments, and the intensification and concentration of poultry operations. These structural changes have resulted in the production of far more waste than can be managed by land disposal and the consumption of large amounts of energy. The use of large facilities associated with higher concentrations of poultry, has given rise to environmental concerns that are not only limited to the local production settings, but extend to environmental problems at regional and global scales. The obvious, and often limited, impacts observed at production, processing and marketing site levels, thus tend to obscure much larger impacts on the regional and global environment.

As a result of this expansion, it is imperative for the poultry value chain in Zimbabwe to step up its environmental proactivity practices in order to manage environmental concerns that arise from its operations. Environmental problems associated with the poultry value chain are well known. However strategies employed by the various facets of the poultry value chain have not been examined. Environmental strategies in use in the poultry value chain and the reasons for these choices are not known. The attitude of the industry as a whole towards environmental management is not certain. One of the most popular ways that can be employed by the poultry value chain in order to manage the environment is to make use of the ISO 14001:2004 system. This is the most popular internationally recognised systems that can be used for environmental management by companies. When ISO: 14001 were introduced in 1999, Zimbabwean companies, including those in

the poultry value chain, showed great enthusiasm to adopt and use the system. However, to date, the system remains unpopular within the poultry industry. In fact, as of October 2012, only one company in the poultry value chain had a valid ISO 14001 certificate (Standards Association of Zimbabwe). This study therefore was aimed at finding out what strategies or practices the poultry value chain companies are using to manage the environmental impacts of their operations and to find out why they chose these strategies.

1.3 Research Questions

In general, the research sought to investigate the environmental proactivity strategies in use in the poultry value chain. The research endeavoured to answer the following questions:

1. What are the attitudes and perceptions of poultry company leaders on environmental management?
2. What environmental strategies are currently in use in the poultry value chain and who are the most influential stakeholders in the selection of these strategies?
3. Which aspects of the environment receive more focus from the entities in the poultry value chain?
4. Do enabling resources such as the presence of other operational systems and a sufficient budget within a company drive towards improved environmental proactivity?

1.4 Objectives

In line with the research questions, the objectives of the study were to:

1. Investigate the attitudes and perceptions of poultry company leaders on environmental management.
2. Identify the environmental proactivity strategies in use in the poultry value chain and the most influential stakeholders in the selection of these strategies.
3. Determine the aspects of the environment that receive more focus from the different business categories in the poultry value chain.

4. Investigate whether enabling resources such as the presence of other operational systems and a sufficient budget within a company drive towards improved environmental proactivity.

1.5 Hypotheses

The null hypotheses that were quantitatively tested in this study are the following:

1. There is no difference in the level of environmental proactivity exhibited by the different business categories found in the poultry value chain (i.e. the commercial farms, service providers, stock feed manufactures and processors).
2. There is no relationship between the amount of focus placed on managing certain environmental aspects by a company and the level of proactivity that company shows.
3. The presence of other operational systems within a company does not affect the level of proactivity shown by the company.

1.6 Justification

This study brought to light the environmental proactivity strategies that are currently in use within the Zimbabwe poultry value chain, an industry that undoubtedly has negative impacts on the environment. Therefore the study will aid policy makers and environmental law enforcers to determine if there is a need to alter existing legislation to improve existing environmental management efforts on the part of the companies.

Literature examined contends that firms respond in a similar way to each and every one of the pressures exerted by stakeholders, thus implying that all stakeholders induce the same response in firms (Murillo-Luna et al, 2008.) The study was aimed at separating the stakeholders and singling out the stakeholders that are perceived to be most influential in the various business categories found in the poultry value chain. In the event that there is a need to adjust environmental proactivity in the industry, knowledge of the most influential stakeholders in each business sector will make it

possible for these relevant stakeholders to be approached so that they can influence the adoption of the adjustments.

There is potential for export of products that are produced by companies in the poultry value chain, such as stock feed. Prakash (1999) reported that there is link between the use of certified environmental management systems and export on the part of companies. Developing countries are currently not benefiting from trade as they potentially can due to non-compliance to environmental standards adopted in industrialised countries (Mihyo, 2003). Knowing the strategies that are already in place in poultry value chain companies that have the potential to export will help us understand the preparedness of the industry to enter the export market once the opportunity arises.

The study looked at stakeholders influence on environmental strategies and the influence of available resources on the part of the companies, considering that the poultry industry being studied is one operating in a country with a very weak economy. Therefore the study added to the existing literature on how stakeholder pressures interact with resource availability, especially monetary resources, on the part of companies to choose environmental strategies. It also showed if companies maintain or decrease their environmental consciousness when monetary resources are constrained by a weak economy.

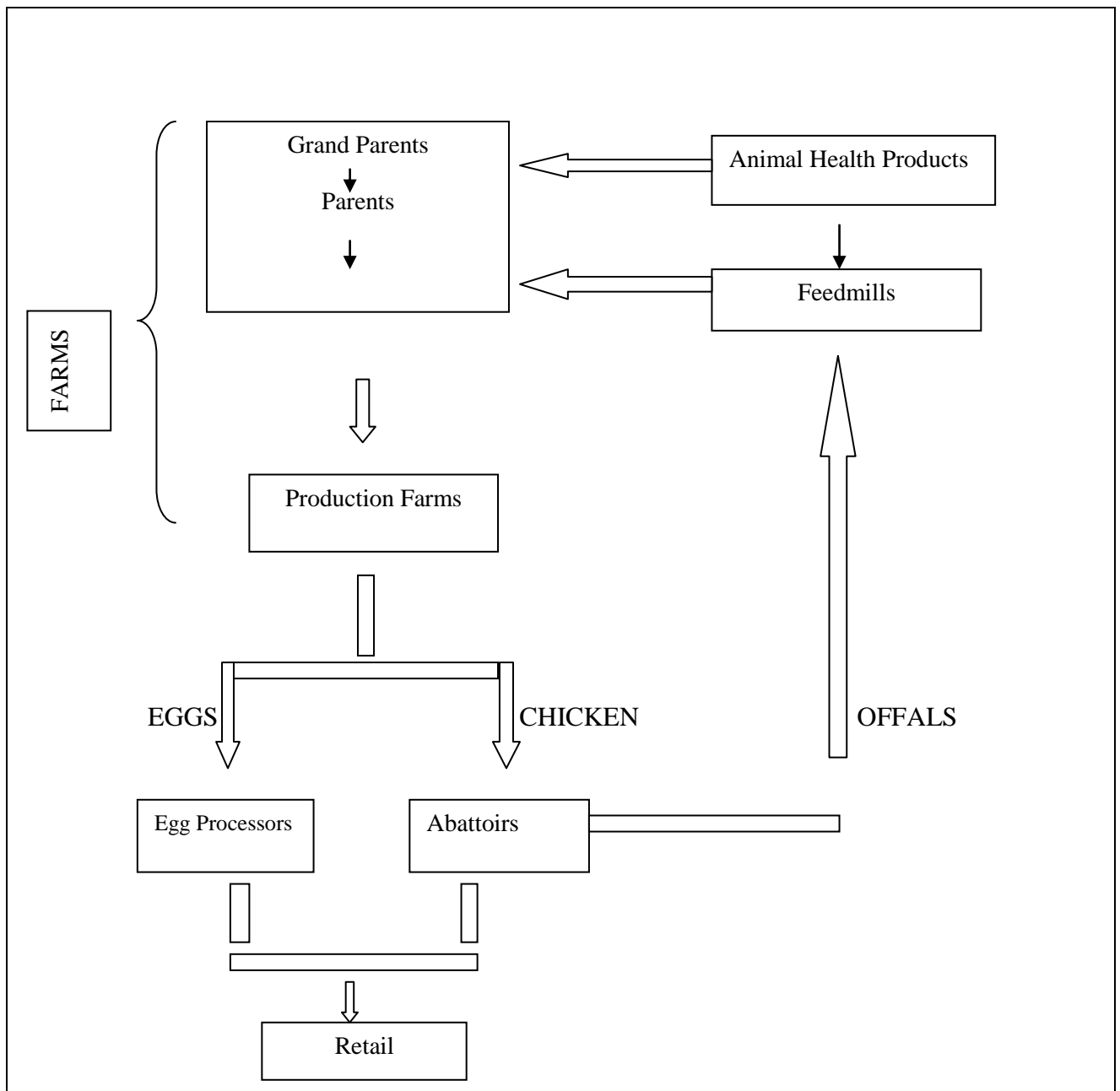
Few studies have been done on the drivers of environmental management strategies in developing countries. Most of the studies have been done in the developing world. Neumayer and Perkins (2004) criticized this and said as a result of this, our understanding of environmental strategies of companies cannot be generalized, since most evidence comes from developed economies. This study was carried out within a developing country, adding knowledge on environmental proactivity within developing economies. Moreover, most studies on environmental proactivity have been targeted at the chemical industry, the paper milling industry and in the energy companies. Doing a study on the poultry value chain contributes to literature on how various industries show their concerns for the environment.

1.7 Scope of the study

The companies that were used in the study are fully registered commercial companies in the poultry value chain found throughout the country. Companies that were chosen from the poultry value chain are those that are registered with the Zimbabwe Farmers Union, the Stockfeed Manufacturers Association and the Zimbabwe Poultry Society. Such companies are authentic and have more corporate responsibility since they are affiliated with a higher entity. Stakeholders that were considered are the customers, employees, regulatory stakeholders, shareholders, affiliation groups and the community.

In this study the poultry value chain was limited and simplified to be as shown in Figure 1 overleaf.

Figure 1.1: Scope of study



Source: The Researcher, 2014

Thus the poultry value chain business units to be examined in this study are limited to:

- a) Farms- encompassing the grandparent farms, parent farm and the production farms.
- b) Processors –this will include abattoirs and egg processors.
- c) Feed mill companies
- d) Veterinary service providers and laboratories

1.8 Operational Definitions

Value Chain - The full range of activities which are required to bring a product or service from conception, through the different phases of production, transformation and delivery to final consumers, and the eventual disposal after use (Kaplinsky and Morris, 2002).

Environmental proactivity strategy- a method or plan taken for the voluntary implementation of practices and initiatives aimed at improving environmental performance (Gonzalez-Benito and Gonzalez-Benito, 2006).

Environmental aspects - Elements of an organization's activities, products or services that can interact with the environment (ISO, 2004).

Company Resources – Human, financial, physical and knowledge factors that provide a firm the means to perform its business processes (Business Dictionary).

Stakeholders - any group or individual who can affect or is affected by the achievement of the organization's objectives (Freeman, 1984).

Chapter 2 .0 Literature Review

This chapter examines and reviews the literature available on the topic of the project. It seeks to elaborate on the origins of global environmental concerns and the classification of environmental proactivity strategies. The chapter also briefly highlights some of the environmental threats posed by the poultry value chain. Lastly, it includes empirical studies done on the stakeholder theory and resource based view with reference to environmental proactivity. This information helped in the design of an appropriate conceptual framework.

2.1 Rise of Global environmental issues

In an effort to help governments to rethink economic development and find ways to stop the destruction of irreplaceable natural resources and pollution of the planet, the United Nations held the United Nations Conference on Environment and Development (UNCED), also known as the Earth Summit, in 1992. Among other things, some issues discussed were the systematic scrutiny of patterns of production, the use of alternative sources of energy to replace the use of fossil fuels which are linked to global climate change and the growing scarcity of fresh water. The Agenda 21, a wide-ranging blueprint for action to achieve sustainable development worldwide, was the main outcome of this summit. The document outlines in detail the United Nations vision for a centrally managed global society. The overriding concept is that environmental protection must be considered as critical as social and economic issues within a nation. It highlights and promotes roles for all, that is governments, businesses, trade unions, scientists, teachers, indigenous people and youth in achieving sustainable development and encourages the reduction of environmentally and socially detrimental processes within a framework that allows economic success (Lafferty and Eckerberg, 2013). In 2012 a follow up conference, the United Nations Conference on Sustainable Development also known as Rio+20 was held in Rio de Janeiro. Rio+20 was centred on the Agenda 21 document and it sought to secure renewed political commitment for sustainable development from the nations in attendance. In addition, participants came together to discuss how environmental protection can be overcome in a crowded planet to get the future we want. Results of Rio+20 are expressed in a document entitled The Future We Want. The document contains

practical measures that can be implemented by member states toward the achievement of sustainable development (UNDP, 2012).

Sustainable development as mentioned in the Agenda 21 is more of a goal than an activity. The idea is for entities to work towards attaining sustainable development. In order to reach the goal of sustainable development, several concepts can be implemented and employed. These concepts include:

- Cleaner production activities which include measures such as pollution prevention, source reduction, waste minimization and eco-efficiency. They involve better management and housekeeping, substitution of toxic and hazardous materials, process modifications, and reuse of waste products. At its heart, the concept is about the prevention, rather than the control, of pollution (Frondel et al, 2004).
- The green economy, which is defined as an economy that results in reducing environmental risks and ecological scarcities, and that aims for sustainable development without degrading the environment. Green economy activities include renewable energy, sustainable transport, water management and waste management (Esty & Winston, 2009).
- Good environmental practices.

In addition, the Agenda 21 document calls for improved environmental management, as stated in Article 30.10 of Agenda 21 which states:

“Business and industry including transnational corporations should be encouraged:

- a) To report annually on their environmental records, as well as their use of energy resources,
- b) To adopt and report on the implementation of codes of conduct promoting best environmental practice, such as the International Chamber of Commerce’s Business Charter on Sustainable Development and the chemical industry’s Responsible Care initiative.”

An understanding and a commitment to sustainable development is critical to a business’ long term future and must play a primary role in decision-making. Companies do well therefore to come up with environmental strategies that put them on the road to sustainable development. Several strategies have been adopted in industry, and these can be distinguished from each other according

to the degree to which they can be more or less proactive (Gonzalez-Benito and Gonzalez Benito, 2010). The next section discusses environmental proactivity in depth.

2.2 Environmental Proactivity

Gonzalez-Benito and Gonzalez-Benito (2006) define environmental proactivity as “the voluntary implementation of practices and initiatives aimed at improving environmental performance.”

Environmental proactivity generally encompasses two dimensions, which are firstly, the degree of proactivity and secondly, the company practises (Hyatt, 2011).

The first dimension, the degree of proactivity, refers to a continuum on which a company might lie. More proactive strategies indicate an internalized, voluntary commitment by the company to the natural environment, which typically involves dedication to taking the position of environmental leadership (Henriques and Sardosky, 1999). Less proactive strategies on the other hand imply reactive or superficial compliance to legislation, with little or no commitment to the natural environment. The work of Azzone and Bertel (1994) and Roome (1992) illustrates various models that can be used to classify the proactivity strategies along the continuum. The models identified four 'generic,' firm level approaches to environmental proactivity and these are the reactive approach, the defensive approach, the accommodative approach, and the proactive approach. Hart (1995) developed a more grounded typology of environmental strategies, basing his work on the resource based view of firms. This view suggests that company strategies only lead to sustainable competitive advantage if the strategies are supported by a set of resources unique to the company, such as rare non substitutable raw materials (Barney, 1992). In this context, Hart came up with four approaches which are:

1. End of pipe approach. This approach reflects a reactive posture to environmental issues, whereby limited resources are committed to solving environmental issues and operational processes are simply made to conform to legal requirements.
2. Pollution prevention or total quality management. This entails that firms continually adapt their products and production processes in order to reduce pollution levels below legal requirements.
3. Product stewardship. This approach calls for the life cycle analysis to be implemented. Products and the manufacturing processes are designed so as to minimize the negative environmental burden during the entire life cycle.

4. Sustainable development. In this case, all stakeholders share a common vision which is to minimize the environmental burden of firm growth through the development of clean technologies.

Further to this, Hart (1995) implied that for a company to move from one strategy to the next, simultaneous investments in several linked resources is required. Five resource domains that come out distinct are the investment in green technologies, investment in employee skills, investment in organisational competencies, investment in formal management systems and allowing individuals responsible for environmental management to participate in strategic planning (Buysee and Verbakee, 2003). Hart's (1995) typology seems to imply that environmental proactivity is only prompted by the availability of resources. It does not take into account the real aspiration on the part of the company to improve environmental performance.

Hart's (1995) resource-based thinking has been further extended by several authors, including Buysee and Verbeke (2003). Building on the work of Hart (1995), they came up with three levels of environmental proactivity which are:

1. Reactive approach -Companies employing this strategy basically have no plan for environmental management. They invest in environmental management merely to respect prevailing regulations (Buysee and Verbeke, 2003). Firms that adopt this approach are likely to view the framework provided by international voluntary agreements and the best practices of environmental leaders as less relevant to their corporate strategy
2. Prevention approach- Companies utilizing this strategy attach more importance to regulatory pressures and they use the evolving regulatory framework as the benchmark for strategy development (Henriques and Sadorsky, 1999). They create adaptive routines that enable them to allocate resources in various environmental management domains
3. Environmental leadership-These firms view the creation of firm competencies as a source of competitive advantage, which is strengthened by regulations. Environmental leadership strategies permit the establishment of better relationships with customers interested in products with a superior environmental performance.

This classification of strategies by Buysee and Verbeke (2003) is the one that was adopted in this study. The classification that distinguishes proactivity into 4 groups was shunned as it can be

difficult to distinguish between the 2 groups in the middle, because proactivity occurs on a continuum. Closely associated with the environmental leadership strategy is the use of environmental management systems. According to Sharma and Vredenburg (1998), the highest level of proactivity gives high priority to the natural environment and voluntary implementation of practices that are aimed at improving environmental performance and organizational capabilities. In most cases, companies put in place environmental management systems in order to improve environmental performance and organisational capabilities.

Moving on with the dimensions of proactivity, the second dimension refers to firm practices, which provide the basic strategy scholars use to assign firms to the continuum. In the work they did in 2006, Gonzalez-Benito and Gonzalez-Benito offered a useful functional classification of practices and initiatives that distinguish the categories of environmental proactivity, namely:

1. Planning and organizational practices – this group represents the extent and means by which management in companies develop policies, plans and objectives to support the natural environment, implement systems to manage the environment and the means through which they assess progress on environmental goals
2. Operational practices- these include both product and process related practices. For the product related practices, it includes the design and development of more environmentally conscious products. This encompasses coming up with operations that work for the elimination of pollution and hazardous materials in products and that facilitate reusability, recyclability and remanufacturing (Gonzalez-Benito & Gonzalez-Benito, 2006). For the process related practices, it involves developing more environmentally conscious operational methods and processes.
3. Communication practices –this is the mechanism by which the organization communicates its environmental performance to stakeholders.

The typology of environmental proactivity incorporating the above mentioned processes is tabulated in Table 1. Alrazi et al (2010) went ahead and combined the first two components of Gonzalez-Benito and Gonzalez-Benito typology into one component, which they termed environmental management systems.

Table 2.1: Typology of Environmental Proactivity (Gonzalez-Benito and Gonzalez-Benito, 2006)

	REACTIVE	DEGREE OF ENVIRONMENTAL RESPONSE-EXAMPLE PRACTICES	PROACTIVE
Planning and organisational practices (primarily benefiting the socio-economic environment)	Minimal	Explicit environmental policies, goals, objectives and plans	Embedded
	Missing	Clearly Defined environmental roles and responsibilities	Explicit
	Minimal	environmental management systems and environmental staffing	Integrated
	Unimportant	Employee training and development on environmental matters	Important
	Missing	Environmental dimensions on managerial evaluation	Explicit
Operational practices (primarily benefiting the natural environment)	None	Cradle to cradle and cradle to grave planning	Likely
	None	Environmental criteria in purchasing and supply chain	Explicit
	None	Life Cycle analysis	Possible
	May meet	Regulatory compliance	Exceeding
	None	External certification systems	Likely
	Minimal	"Green" processes-reduce, reuse, recycle; end of pipe concerns	Extensive
Communication practices (primarily benefiting the socio-economic environment)	Possible	Internal and external elaboration of environmental performance	Likely
	Possible	Environmental arguments in marketing systems	Likely
	Unlikely	Stakeholder engagement and community involvement	Likely

2.3 Environmental management systems (EMS)

In order to get a full appreciation of environmental management systems, it is best to first define the environment. The International Standards Organisation (ISO) defined the environment as “the surroundings in which an organization operates, including air, water, land, natural resources, flora fauna, humans and their interrelation” (ISO, 1996). In view of this definition, Hewitt and Gary (1998) defined environmental management as “management of an organization’s or company’s impact on the environment”. This definition may give the impression that environmental management is a reactive activity, done at the end of the process, when the impact is visible. A better definition would be one that shows environmental proactivity, versus a reactive response. ISO defines environmental management systems as “that part of the overall management system which includes the organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing implementing, achieving, reviewing and maintaining the environmental policy” (ISO, 1996). From this definition, environmental management systems are a set of processes and practices that enable an organisation to increase its operating efficiency and decrease its negative environmental impact. In other words, an environmental management system is a hands-on, systematic approach plants can use to identify aspects of their operations that can be more efficient and perform better environmentally. Environmental management systems are adopted voluntarily by firms and the drivers that force firms to adopt these will be examined shortly.

Environmental management systems are tailor made for each company, being derived from the environmental policy of an organisation. Such a policy is a set of rules or principles that an organisation adopts for a chosen course of action (Hewitt and Gary, 1998). In addition to having an environmental policy, an organisation that seeks to implement an EMS must have clear objectives and long-term environmental plans, well-defined environmental responsibilities, a department to manage environmental issues, training programmes and systems for measuring and assessing environmental performance (Gonzalez-Benito and Gonzalez-Benito, 2006).

The use of environmental management tools is considered as one primary tool for sustainable development. Environmental management systems have been demonstrated to be a successful tool

along the sustainable development path. Their effectiveness can be demonstrated by the fact that worldwide, their implementation has not decreased during the present economic crisis (Litido and Righini, 2013). EMSs are a structure within which the above mentioned operational concepts can be implemented and monitored. An EMS is the best operative and strategic tool able to continuously improve environmental performances of an organization (Litido and Righini, 2013). These management systems can be used to deliver sustainable product planning. The system requires an evaluation of environmental aspects and those which would be considered significant aspects and thus cause a company to potentially investigate its supply chain due to the possible influence. Through the process of continuous improvement, a company can continually weave its economic considerations with its environmental aspects evaluation and drive towards a more efficient use of its natural resources (Brorson and Larsson, (1999).

In the poultry industry that is under study in this document, the benefit of a good environmental management system includes:

- Pollution prevention and minimization
- Reduction and mitigation of risk to workers
- Enhanced compliance to laws
- Achieve and improve employee awareness of environmental issues and responsibilities, which will cascade to the individual capacity
- Increase efficiency of operations and reduce costs, hence increase profitability which leads to improved social status of employees.
- Retention of customers and markets with EMS requirements
- Organized and accessible environmental records
- Helps identify and capitalize on environmental opportunities that go beyond compliance, leading to improved conservation of natural resources
- Provide a framework for using pollution prevention practices to meet EMS objectives

2.3.1 Types of Environmental Management Systems

a) Firm-Structured EMSs.

For about three decades now, many firms have developed internal EMSs in order to meet environmental targets. An organisation decides the direction they want to take in terms of

environmental activity. Based on this, top management sets goals and develops an implementation plan to meet the goals. Responsibility is assigned to a member of staff or a team, for the gathering of information and tracking the progress of the EMS. Training programs are conducted with all employees so that the employees can understand the system and each can do their part to work towards the attainment of the goal. The system is reviewed periodically and altered to accommodate any adjustments that are deemed necessary.

b) Standardized EMSs.

These are environmental management systems that can be certified by a third party. When a firm sets up an environmental management system, it embraces certain rules of behaviour. These rules become a “credible commitment” to its stakeholders (North and Weingast, 1989) upon certification of the system. Examples are the Eco-Lighthouse program in Norway, the Eco-Management and Audit Scheme (EMAS) and ISO 14001. For the purposes of this research, we will only look at ISO 14001.

As a follow up to the Uruguay round of General Agreement on Tariffs and Trade (GATT) negotiations and the Earth summit in Rio de Janeiro in 1992, ISO 14001 environmental management system (EMS) standard was developed, as one of the tools that can be used to achieve sustainable development (Murambanyika and Mutekwa, 2009). ISO 14000 series of standards was developed by ISO in an effort to provide a framework firms must follow to identify environmental impacts, train workers, and document progress. They borrowed much of their work from the theory of total quality management and from The British Standards Institute, who had run a similar endeavour prior to that. ISO followed BSI’s lead and drafted an EMS standard they believed was flexible enough to be applicable to any organization (Uzumeri 1997). It is the first series of standards that allows organizations all over the world to pursue environmental efforts and measure performance according to internationally accepted criteria (Hewitt and Gary, 1998). ISO lays out a system for the management of environmental obligations and the conduct of product evaluations without specifying the goal an organisation must achieve (Cascio et al, 1996). There are several standards that fall in the ISO 14000 family, including ISO 14001 which was released in 1996 and modified in 2004. This standard is the “Environmental Management System-Specification with Guidance for Use” and companies can get certified in it.

Through the use of ISO 14001, nations can work together in reversing the trend of environmental destruction by thinking synergistically and as one world, hence eliminating environmental boundaries. In line with this, most companies are seeking ISO 14001 certification. ISO 14001 has become a means of operationalizing self-regulation that companies prefer compared to government regulations (North, 1997). The number of organisations implementing environmental management systems based on the ISO 14001 standard continues to grow in spite of the prevailing economic climate in the world (ISO, 2004).

The use of ISO 14001 in moving towards sustainable development has been met with both positive and negative criticism. One common criticism it gets is that as a system, it does not measure the actual environmental performance of an organisation (Krut & Gleckman, 1998). Companies set their own environmental targets and as long as they meet these, they are deemed to be compliant. Yet their targets may be unsuitable for the environment under which they operate. Another weakness displayed by the system is that the standard has a high degree of flexibility, lacking many restrictions. This gives room for varied interpretations of its requirements (Allenby and Graedel, 1995) and therefore the standard may not guarantee good environmental performance. On the other hand, Howes et al (2006) alludes to the fact that ISO 14001 certification delivers real environmental improvements, as a byproduct of the attention that the company focuses on material use and waste management. In addition to this, the increased employee training offered to personnel in companies that employ ISO 14001 is a valued strategy in the implementation of an integrated EMS and ultimately an improved corporate environmental performance.

The poultry industry in Zimbabwe would benefit from the use of ISO 14001. Multinational companies continue to push for the implementation of ISO 14001 certification down to their supply chains. Various crucial inputs in the poultry industry (such as grandparent chicks) are provided by multinational companies and in the interest of smooth business continuation, it would be best if the companies are found ISO certified when the multinational companies call for ISO 14001 certification. Much as the ISO 14001 standard is not performance based and does not ensure improved environmental performance (Krut & Gleckman, 1998), it is a means to show initiative on the part of organisations to show environmental responsibility (Howes et al., 2006). Customers are

known to boycott the consumption of products that are produced by companies that are perceived to be environmentally unconscious. So having ISO 14001 certification in the poultry industry will put the minds of environmentally conscious consumers at ease, since they know that poultry companies are at least environmentally conscious. ISO 14001 has demonstrated that it can provide the foundational concepts for a sustainable development policy and implementation plan at all levels of management and government. In addition, a set of common guidelines facilitates trade, such that poultry companies that are ISO certified will be able to trade easier (Litido and Righini, 2013).

2.3.2 Environmental aspects

In the context of this research, we cannot talk of environmental proactivity, without talking of 'environmental aspects'. According to ISO 14001, an environmental aspect is an "element of an organisation's activities or products or services that can interact with the environment" (ISO, 2004). Brorson & Larsson (1999) define an environmental aspect in terms of circumstances which include activities, operations, products and services that can cause environmental impact. This term is favoured instead of the terms 'environmental impact' or 'environmental effect'. The ISO 14001's definition of environmental aspect is adopted in this document. The idea of environmental aspects is of paramount importance in managing operational impacts on the environment, since it determines the shape and focus of environmental management practices (Cascio et al., 1996). Environmental aspects form the basis for environmental objectives, target and improvement programmes. They dictate which employees should receive environmental training and which procedures must be documented and tracked. Environmental aspects enable the evaluation of environmental performance. In the poultry industry, environmental aspects can refer to the different types of emissions that originate from various activities within the industries. It can also refer to the management of the various waste products and the use of resources such as energy, water and raw materials. In addition to this, an environmental aspect can also be of more organisational nature, such as lack of communication and insufficient environmental training if these elements lead to an impact on the environment. No studies have been done to differentiate the various aspects that are perceived to be more crucial by the poultry value chain industries. This study sought to determine the environmental aspects deemed most important by the different companies in the poultry value chain.

2. 4 The Poultry Value Chain and the Environment

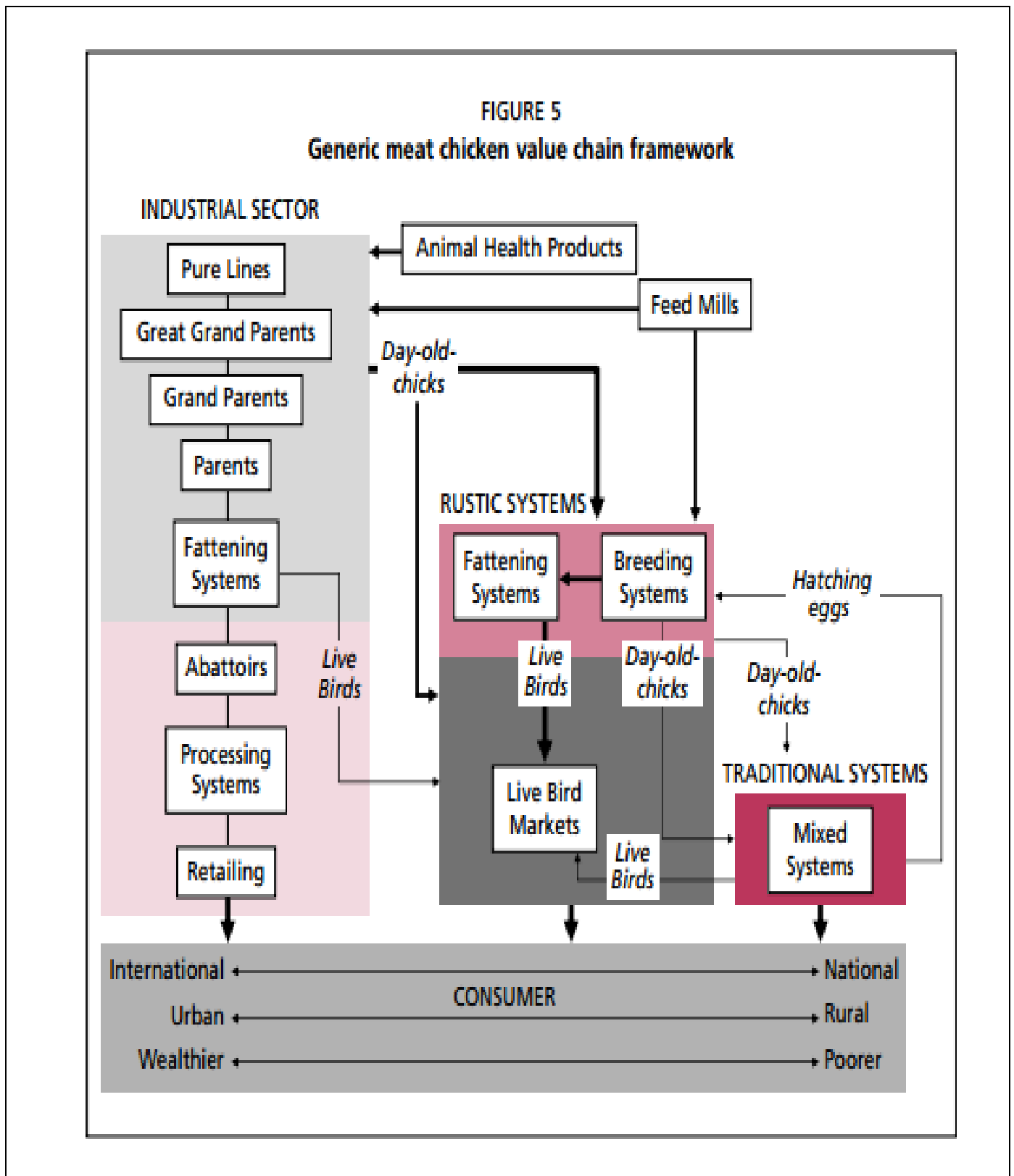
This section discusses how the poultry value chain companies are linked and it describes some of the environmental impacts of the companies' operations.

2.4.1 Poultry Value Chain

According to Kaplinsky and Morris (2002), a value chain is the full range of activities which are required to bring a product or service from conception, through the different phases of production, transformation and delivery to final consumers, and the eventual disposal after use. In other words, value chains are groups of entities linked by an activity to supply a specific commodity. In the case of the poultry value chain, the commodities provided are eggs and chicken. Value chains have inputs that are used to produce and transport a commodity towards a consumer. They are managed by the people in the chain who set rules on how different facets of the chain interact (FAO, 2011). Figure 2 provides an example of a value chain, showing the chicken value chain. Shown in the diagram are the key components of livestock production value chains. Other factors have been left out, such as the financial support services, regulation services and specific people involved in the chain. Key elements of the poultry value chain can be classified as follows:

- Inputs and service suppliers - All livestock systems require major inputs such as feed, pharmaceuticals and services such as veterinary or breeding services.
- Livestock production units – This encompasses many types of farms, such as parent flock farms, hatchery or rearing farms and finishing farms.
- Animal marketing and processing – Included in this subgroup are many types of farms or holdings, some of them being included in the livestock production units.
- Product marketing - This section has the product that may be marketed to consumers with more or less intermediate processing. Embraced in this section are the live poultry that are sold directly from a farm to the final consumer.
- Waste and by-product – The poultry system produces by-products and waste.

Figure 2.1: Chicken Value Chain



Source: FAO, 2011

2.4.2 Environmental concerns associated with poultry industries

Among other things, poultry manure is rich in ammonia, which is one of the gases that are responsible for the pungent smell associated with poultry farms (Burton and Tuner, 2003). When poultry manure is deposited, the ammonia is volatilised and this is one of the major causes of acidifying wet and dry atmospheric deposition. Poultry manure leads to nitrogen saturation of the soil, leaching out other nutrients. This leads to forest die backs.

Increased energy use is associated with increased pollution, at farm level or at electricity generation level. Poultry farms are intensive in their energy use. During the brooding stage there is need for heat to be supplied for the chicks. It is common to use charcoal, firewood and electric powered infrared lamps to maintain brooding temperatures for the chicks. Hatcheries also use a substantial amount of energy to maintain temperatures conducive for the hatching of the eggs. Stock feed manufacturing companies burn coal to fire up their boilers for the production of steam. All sectors of the poultry value chain have specialised vehicles for the transport of their products, and these vehicles, if not maintained and serviced regularly, are a source of carbon emissions (Wardrop Engineering, 1998).

A number of feed manufacturing companies employ contract growers to grow the grain they need for the manufacture of poultry feeds. The contract growers grow crops such as soyabean meal and maize. Because of the pressure imposed on the farms by the stock feed manufacturers, the contract grower use fertilisers, herbicides and pesticides in order to have a high yield of crops. Chemical use in agriculture is associated with eutrophication of water bodies and the loss of biodiversity (Burton and Tuner, 2003).

The poultry industry, together with other industries, is responsible for polluting water bodies. Several poultry farms are located near rivers for easy access of water and easy drainage of waste. Runoff from the cleaning of poultry house contains chemicals that are hazardous to aquatic animals. Stock feeds are commonly inoculated with heavy metals as trace elements for the good health of the

poultry. However, poultry only utilise 5-15% of the heavy metals they ingest, and the remainder is excreted and goes back to the environment and is washed to the rivers where it poisons aquatic animals (Burton and Tuner, 2003).

Poultry production uses more water per unit of meat produced as compared to red meat. In fact Wardrop Engineering (1998) estimated the amount of water used to be 1290 litres per bird. This can lead to increased conflict between humans and the poultry industry as they compete for the limited water resources.

2.5 Environmental Strategies used in other parts of the world

This section highlights environmental management programs generally used in other developing countries as well as in the poultry industries of other countries.

2.5.1 Environmental Management in developing countries

Studies have shown that in the developing world, the adoption of ISO 14001 has generally not permeated to small and medium sized enterprises. In the research done in Hong Kong (Chan and Li, 2001) and in Mexico (Dasgupta et al., 2000), it was shown that larger facilities are more likely to obtain ISO 14001 certification. Yet the majority of enterprises in the developing economies are small and medium sized enterprises that serve the domestic market. This can be emanating from the high initial cost of implementing an ISO 140001 EMS. Larger companies may have more available funds to invest in certifying an ISO 14001 system and in training manpower to successfully run the system. Larger firms may also find it to their advantage to use ISO certification to deflect negative publicity, since they are more visible to the world as compared to small and medium sized enterprises (Earnhart et al., 2013).

Some developing countries launched pilot public disclosure programs. These programs proved to be instrumental in reducing the percentage of companies that are non compliant but they have not motivated any companies to go beyond compliance. The improvement was brought about by the non compliant companies fearing public disclosure and this prompted them to improve their operations even before the public disclosure program was implemented (Earnhart et al., 2013).

According to Wang et al. (2004), there was an increase of between 10% and 50% in the number of compliant companies across programs in several developing countries with the first year. Examples of such programs include Eco Watch in Philippines (Wang et al., 2004) and the Green Ratings Program in India (Gupta and Goldar, 2005). Powers et al (2011) analysed the effects of the Green Rating Program on emissions of water pollutants from the large scale paper and pulp plants and found that the program was effective and caused plants with worse initial performance to reduce emissions of total suspended solids by between 9 and 19%.

In an effort to encourage voluntary approaches to improve environmental performance of companies, companies in Chile, Mexico, Colombia and Costa Rica entered into voluntary agreements with regulators establishing clear targets and timetables, firm specific commitments and a mechanism for monitoring performance (Blackman, 2010). According to Jimenez (2007), these voluntary agreements increased regulatory compliance among participant, led to greater process innovation, adoption of environmental management systems and organizational changes. However, these agreements did not lead to significant adoption of preventive waste management systems, since the firms negotiated with regulators targets for waste management that were within their reach. In Mexico such programs were targeted at the informal leather tanneries and brick makers and they were developed to overcome gaps in regulations and weak capacity to regulate the hundreds of small dispersed polluting firms. However, in the absence of regulatory and legal infrastructure, regulators in Mexico lacked the ability to threaten the tanneries with stringent regulations if the voluntary approach was not successful. Therefore, the program was ineffective in inducing environmental change (Khanna and Liao, 2014). Chile had better results with the voluntary agreements. They did increase compliance but did not prompt the firms to go beyond compliance towards an environmental leadership role. However, participation was motivated by concerns about competitiveness more than anything else (Khanna and Liao, 2014).

2.5.2 Environmental management in the poultry industry

There has not been much work done to investigate the environmental strategies used in the poultry industry in the world. Most studies done on environmental strategies have been done on energy companies, food manufacturers, the paper milling industry, mining industries and chemical companies. This may be because these industries are perceived to have a great impact on the

environment. When it comes to the poultry industry, emphasis is put on waste management. Much as waste management is a good strategy towards environmental proactivity, it may not be enough to ensure sustainable running of the industry, as more than waste management is required.

The United States of America has various plans and programs that the poultry value chain players can use to manage their environments. The US Poultry and Egg Association is a body which is responsible for The Poultry and Egg Producers Environmental Enhancement and Protection Program (E2P2), which was rolled out in December 2013 to assist poultry and egg producers in evaluating environmental strategies associated with the management of manure and other byproducts generated on the farm. The program goes beyond encouraging poultry and egg producers from managing waste; it assists the producers to evaluate the carbon footprint of their delivery trucks and the greenhouse gas emissions of their stationary equipment such as boilers and generator. All registered members of the US Poultry and Egg Association are free to use the program on their operations (US Poultry and Egg Association, n.d.). In addition to this, the America Meat Institute has in place the Environmental Recognition Award Program, which all in the meat industry can voluntarily take up. It is a step-by-step guide to what companies and farms can do to systemize their approach to managing their environmental footprint, making them better neighbours. The institute also tailors environmental management systems for entities that want these, in addition to offering certified environmental management systems (America Meat Institute, n.d.).

The adoption of formal environmental management systems in the whole agriculture industry of Australia is low. Therefore the Ministers for Agriculture and Natural Resources across Australia took the initiative to develop a National Framework for EMS in Australian agriculture. The purpose was to provide a context and a common level of understanding for the adoption of environmental management systems in agriculture, recognizing that the details and content of an EMS will be determined by the individual business. It also describes the relationships and roles of the range of participants in environmental management in agriculture. The National Framework has been endorsed by the Natural Resource Management Ministerial Council, which oversees its use in supporting and coordinating the voluntary adoption of EMS in Australian agriculture (Department of Agriculture and Food, n.d.). In New South Wales, the Australian Chicken Growers Council

Limited (ACGC), with support from the Commonwealth Department of Agriculture, Fisheries and Forestry train poultry value chain players in a program called Pathways to Industry EMP Program. The program aims to help meat chicken growers and the supporting industries to develop and implement Environmental Management Plans. Growers, processor representatives and regulators are encouraged to participate in the training. This leads to firms developing their own tailor made environmental management plans that are not certified. However, several generic environmental management plans for poultry industries can also be availed to firms that do not want to tailor make their own plans. In Queensland the farmers and industries are using a guide that helps them to follow Best Practice Environmental Management (BPEM) applicable to the meat chicken industry. The underlining philosophy of BPEM is the adoption of management practices that reflect the best information and technologies presently available. Thus the farmers and industries do not use a particular system or plan per se, but they attune their operations to the suggestions in the BPEM guide. This guide is also used by Regulatory Authorities to address negative environmental impacts of existing farms, where current practices do not meet industry best practice (Australian Chicken Growers Council Limited).

In South Africa the majority of large poultry producers belong to a conglomerate, where the whole value chain is owned by one company. Such is the case with Rainbow Chickens. As such, environmental proactivity endeavours stretch across the value chain. As of 2011, all feed mills of the group had certified environmental management systems. Implementation for processing facilities, agricultural farms and distribution facilities was underway (Rainbow Sustainability Report, 2011). Another group of companies, Afgri, utilizes ISO 9002 and 14001 standards at the Animal Feeds operations and has registered its oil extraction sites as Major Hazardous Installation (MHI) with the Department of Labour (AFGRI South Africa, n.d.). Other players in the industry stick to their environmental policies, regularly reviewing their activities in compliance with all relevant legislation (Country Bird Holdings, n.d.)

2.6 Theoretic Framework

This section examines theories that have been used to explain how and why companies choose the environmental proactivity strategies they use. Two main theories are discussed, that is the

Stakeholder Theory and the Resource Based View. In addition, the value chain approach will be discussed, as it has a bearing on how strategies are chosen and thus it contributes towards the design of a conceptual framework.

2.6.1 Value Chain Approach

In some cases, firms make choices in response to the structure of the value chain. Gonzalez-Benito and Gonzalez-Benito (2006) suggested that the proximity to the final consumer within the supply chain is an important factor in influencing the environmental pro-activity of a company. The level of societal exposure of a company may relate to reputational behaviours of the company (Arora and Cason, 1996). Haddock-Fraser and Fraser (2008) found a relationship between a company's position in the value chain and its provision of corporate environmental information, with those companies interacting directly with end-consumers more likely to report on environmental management initiatives and activities undertaken. Again, this suggests that for companies with higher societal exposure, there are higher levels of motivation to ensure corporate reputation is maintained. On the other hand, some authors have argued against the supply chain position as an influencing factor. A study in the automobile industry done by Wilson (2000) showed that many final manufacturers require assurance of environmental commitment from their suppliers such that even though the suppliers do not feed directly to public consumers, they are forced to show a high level of environmental commitment. In the poultry value chain, the end products are poultry meat and eggs. However, due to the nature of this industry in Zimbabwe, all companies in the value chain have the public market as their consumers, since a substantial percentage of the population rear chickens in their backyards. This investigated if the position of the organization in the value chain has a bearing on the environmental proactivity strategy chosen, considering that the whole industry has goods that go directly to the public.

2.6.2 Stakeholder theory

In trying to determine the drivers of environmental proactivity in firms, several academics have referred to the Stakeholder Theory. Scholars in the past have alluded to the fact that stakeholder pressure is the central determinant of environmental proactivity on the part of the firms (Buysse & Verbeke, 2003; González-Benito & González-Benito, 2006, 2010; Henriques & Sadosky, 1999).

Freeman (1984) defines stakeholders as "any group or individual who can affect or is affected by the achievement of the organization's objectives." Stakeholders are groups or individuals who have an interest in the actions of an organization and have the ability to influence it. The Stakeholder Theory implies that firm behaviour is conditioned by the pressures exercised on organisations by different stakeholders. In turn, the firms respond to their stakeholders' requirements by adapting environmental practises (Murillo-Luna et al, 2008) and these practices will lead to improved environmental management.

Attempts have been made to classify the stake holders that influence a company's environmental proactivity. One classification states that there are primary stakeholders, also known as or organisational stakeholders (Henriques and Sadorsky, 1999) and secondary stakeholders. Primary stakeholders are fundamental to a company's operations and survival. They have a high interdependence with the organisation and their support for the organisation is essential for the organisation to develop and survive. Primary stakeholders include shareholders and investors, employees, customers, suppliers, and public stakeholders, such as government and the community. Secondary stakeholders influence and/or are affected by the company but are neither engaged in transactions with the firm nor essential for its survival and this group competitor (Buisse and Verbeke, 2003)

Another classification stresses four critical groups of stakeholders, which are:

(1) Regulatory stakeholders,

Regulatory stakeholders include government bodies that make environmental regulations, affiliation bodies and trade associations that collect information regarding legislation (Kirby, 1988). In this group lies a firm's competitors, who may become leaders in the environmental field through their use of technologies that become industry norms and/or legal mandates. It must be noted that regulatory stakeholders other than governments may have the ability to convince governments to standardize an environmental practice or technology.

(2) Organizational stakeholders,

This group includes those who are directly related to an organization and have the ability to impact its bottom line directly. Some scholars refer to them as primary stakeholders because they are involved in the value chain (Buisse and Verbeke, 2003). These include customers, suppliers, employees, and shareholders. The success of any environmental policy planning requires the participation of the employees. Shareholders voice their concerns by expressing them at meetings or by simply selling their shares, which represent their stake in the organization (Greeno & Robinson, 1992).

Customers respond to a company's actions by either purchasing its product or boycotting a company's product in an effort to voice their discontentment. A study conducted by Corbett & Kirsch (2001), on a sample of 63 developed and developing countries showed that countries that had a large customer base of foreigners were more inclined to take up ISO 14001 certification. It noted that for companies whose products are domestically consumed or exported to other less green countries, the market incentive for incurring the costs of strengthening their environmental standards are weak. A supplier can exert its influence by pressuring the firm to employ a more environmentally acceptable substitute (Henriques and Sardosky, 1999). For firms that are supplying customers in developed economies or that are part of a value chain with companies that care about the environmental practices of their suppliers, market pressures influence the adoption of environmental management practices. An empirical study conducted by Earnhart et al (2013) showed that multinational companies take up more ISO 14001 certification and they expected their suppliers to do the same. While this requirement has a spill over effect and leads to some diffusion of environmental management across firms in developing economies, the extent to which this occurs may be limited to larger export oriented firms. This current study sought to investigate other strategies, besides ISO 14001 that are in use a developing country's industry that is permeated by small to medium sized enterprises, with limited abilities to export.

(3) Community stakeholders

Community stakeholders, include community groups, environmental organizations, and other potential lobbies that can mobilize public opinion in favour of or against a corporation's environmental performance. These are also referred to by some scholars as secondary stakeholders (Gonzalez-Benito and Gonzalez-Benito, 2006)

(4) The media.

The influence of the media comes from the information they convey about a company. Mass communication technology has changed the role of the media with respect to business (Freeman, 1984). The media can influence society's perception of a company, especially when environmental crises occur.

Some researchers insinuate that companies respond in a similar way to each and every one of the pressures exerted by stakeholders (Murillo-Luna et al, 2008). Buysse and Verbeke (2003) sought to single out a specific corporate performance for each stakeholder pressure. Such an approach helps gain a more accurate view of a firm's environmental performance with regards to its stakeholders. This research sought to establish which particular stakeholders invoke a particular response in the poultry industries in terms of environmental proactivity. The stakeholder theory maintains that preserving poor relationships with stakeholders is damaging to a firm (Freeman, 1984). Thus firms can be expected to react to stakeholder pressure and improve their environmental management.

2.6.2.1 Stakeholder salience

Mitchell et al., (1997) mentioned what is called stakeholder salience. They defined it as “the degree to which managers give priority to competing stakeholder claims.” They suggested companies pay more attention to stakeholders who have more:

1. power to influence the organization or project deliverables (coercive, financial or material, brand or image)
2. legitimacy of the relationship and actions in terms of desirability, properness or appropriateness
3. the urgency of the requirements in terms of criticality and time sensitivity for the stakeholder.

Salience is a function of one, two, or all the attributes power, urgency, and legitimacy (Mitchell et al, 1997). The more attributes companies assess as strong, the higher the salience of this particular stakeholder. According to Scott (1995), the legitimacy of an organisation's behaviour is one of the foundation upon which its continued existence and development within society is founded.

Therefore, if the society considers that the behaviour of organisations that operate within itself is inappropriate, such organisations run the risk of disappearing (Suchman, 1995). Thus, as the Stakeholder Theory maintains, firm behaviour yields to satisfying stakeholder demands, firms will have incentives to attend to those demands that society considers legitimate. In addition to this, Mitchell et al (1997) refers to “attribute urgency,” which is defined as “the degree to which stakeholder claims call for immediate attention”. This is directly related to the importance that stakeholders attribute to the demand, and the amount of time within which they wish the demand to be met. If organisational and non organisational stakeholders prioritise the natural environment then the firm will have an incentive to pursue activities to satisfy that desire. In addition to these attributes that influence stakeholder salience, Braun (2003) and Gröner and Zapf (1998), added another attribute, which is the stakeholder’s willingness to cooperate.

2.6.3 Resource Based View

The resource based view has also been used to explain how companies behave. The view stipulates that a company will use resources it has available to come up with strategies that will give it competitive advantage over its counterparts. These resources can be tangible or intangible (Grant, 1991). Tangible resources include financial reserves and physical resources such as plant, equipment, and stocks of raw materials. Intangible resources include reputation, technology, human resources and the company’s ability to utilize these resources. The presence of specific capabilities is one of the key factors that help companies to find and establish a particular proactive environmental strategy (Tutore, 2013). The resources and capabilities required to implement a firm's environmental policy vary radically, depending on whether or not that firm goes beyond compliance to legislation.

Proponents of this theory subscribe to the notion that companies in the same industry select and use different environmental proactivity strategies based on the resources available to the particular company. Firms that tend toward the compliance mode will differ in their resource bases from those that tend toward prevention. For example, Hart (1995) distinguished different types of resource-based environmental approaches. He concluded that companies with limited resources were more likely to take up the end-of-pipe approach, where the limited resources are committed to solving

environmental problems whilst product and manufacturing process improvements are made to conform to legal requirements. To the extent that prevention at the source allows firms to achieve regulatory compliance at a lower cost and to reduce liabilities, this environmental strategy may be viewed as a cost leadership for companies without excess financial and infrastructural resources.

This study endeavoured to investigate further the role of available financial resources in the implementation of an environmental strategy within the poultry industry, in view of the economic constraints that affected the country over the past decade. Due to scarce financial resources at the disposal of the companies to date, companies are forced to move through the principle of criticality and scarcity where they allocate the scarce resources to operations that are essential for the survival of the company. In a business environment as is present in Zimbabwe today, the only route that a business can use to improve return on investment and profit margins is through improving productivity and cost reduction on a continuous basis. Thompson et al (2010) suggested that one way of cutting costs was to do a Business Process Re-engineering (BPR) which involves a complete overhaul of the internal business process, removing all the production process that do not add value. They also added that another method was to cut marginally beneficial activities out of the production process. No doubt many companies in Zimbabwe have had to change their business operations to remain viable. This study showed how valued environmental strategies are in the poultry value chain, by investigation whether the limited availability of funds leads the industry to prioritise or neglect environmental concerns. It examined if companies are planning for the environment by budgeting for it. One major objective of a budget is to increase the likelihood that targets will be reached. Thus when a company has a sufficient environmental budget, they can set goals on environmental achievements and their budget helps them to meet these. A budget also provides companies the opportunity to formulate and evaluate options when environmental liabilities are encountered. It helps them mitigate negative impacts of their operations on the environment.

Some scholars have supported that environmental strategies employed by companies are determined by the cost of setting up these strategies. Neumayer and Perkins (2004), sort to examine why the use of ISO 14001 had been accepted differently by each country. Their work sheds light on how income is related to environmental strategy chosen, by showing that firms in low income

countries find it difficult and costly to implement and certify ISO 14001 management systems. The cost of being ISO certified involves significant implementation costs in the form of training staff, collecting information on past activities and current applicable environmental regulations, and consultant and certification fees. Darnall and Edwards, (2006) found that companies with more access to financial resources through many investors are more likely to take up comprehensive environmental management practices as they may enjoy lower costs of adopting these since they are part of a multifacility operation. Less profitable firms have fewer resources to spare for socially responsible activities such as environmental proactivity and they are limited in the strategies they employ due to limited funds (Waddock and Graves, 1997). This study adds to this literature by showing the alternatives companies are taking, if any, in a low income country, in the event that they find certified EMSs too costly to implement. Relatively low-cost practices, such as developing community advisory boards, may be widely adopted, whereas more costly practices such as setting up a certified environmental management system may not be widely adopted.

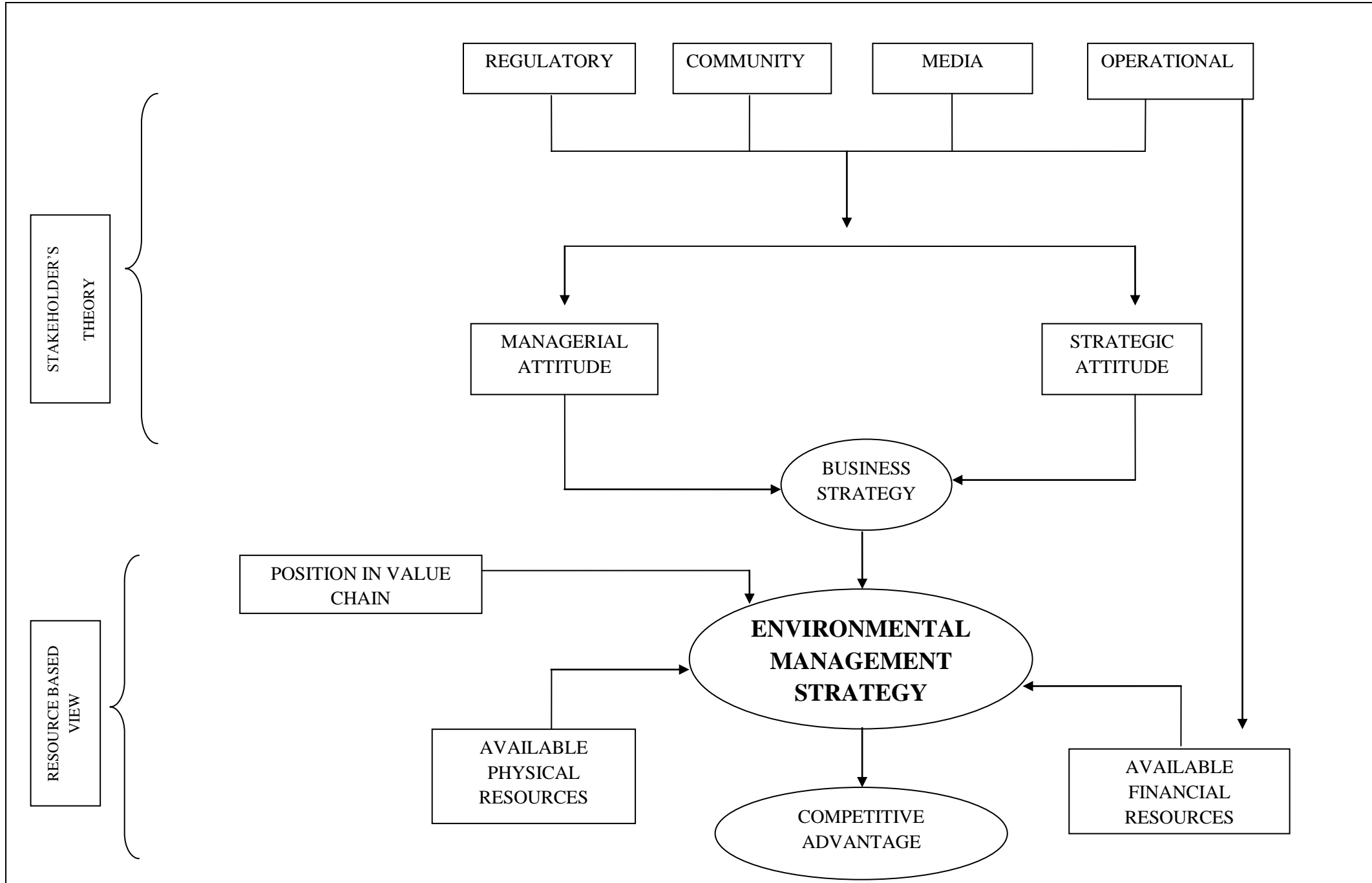
Another valuable resource that a company can have that can aid in the execution of any environmental strategy chosen is the presence of other operational systems. These systems include the Foods Safety and Health System, Hazard Analysis Critical Control Points, Quality Assurance and Occupational Health and Safety. Some organisational processes that are put into place by the presence of another system can be used in improving the environmental proactivity. For instance, having a Quality Management System will require strict document and records control. Information on environmental management practices such as pollution tracking can be captured at the same time quality records are being documented, making it easier for the company to track its pollution and subsequently deal with it. This study found out therefore if companies that have another existing operational system show more environmental proactivity.

Human resources, including managers, are also part of the resources a company has. It follows then that their attitudes and perceptions can prove to be valuable assets in the formation of company strategies. Several authors have pointed out the importance of managers' support and commitment towards proactive environmental strategies (Del Brioe et al., 2001; Berry and Rondinelli, 1998). However, support and commitment are not enough to bring about the implementation of proactive environmental strategies. Managers' beliefs, expectations, perceptions and opinions come into play

as well in influencing the environmental practices implemented by a company. This is supported by the work of Cordano and Frieze (2000) and Fineman and Clarke (1996). Since managers are responsible for the implementation of strategies, the strategy employed depends upon how managers interpret the natural environment (Sharma, 2000). The uniqueness of a proactive environmental strategy is determined by the perceived level of impact of environmental constituencies (Banerjee, 2001). Therefore, the impact on the environment that managers perceive their company operations to have may influence the behaviour of a firm. This study investigated how managerial attitudes and perceptions towards environmental concerns influence the choice of strategy chosen.

A diagrammatic presentation of the theoretic framework is shown in Figure 3, showing the drivers that influence environmental proactivity.

Figure 2.2: Theoretical Framework (Freeman (1984) and Resource Based View)



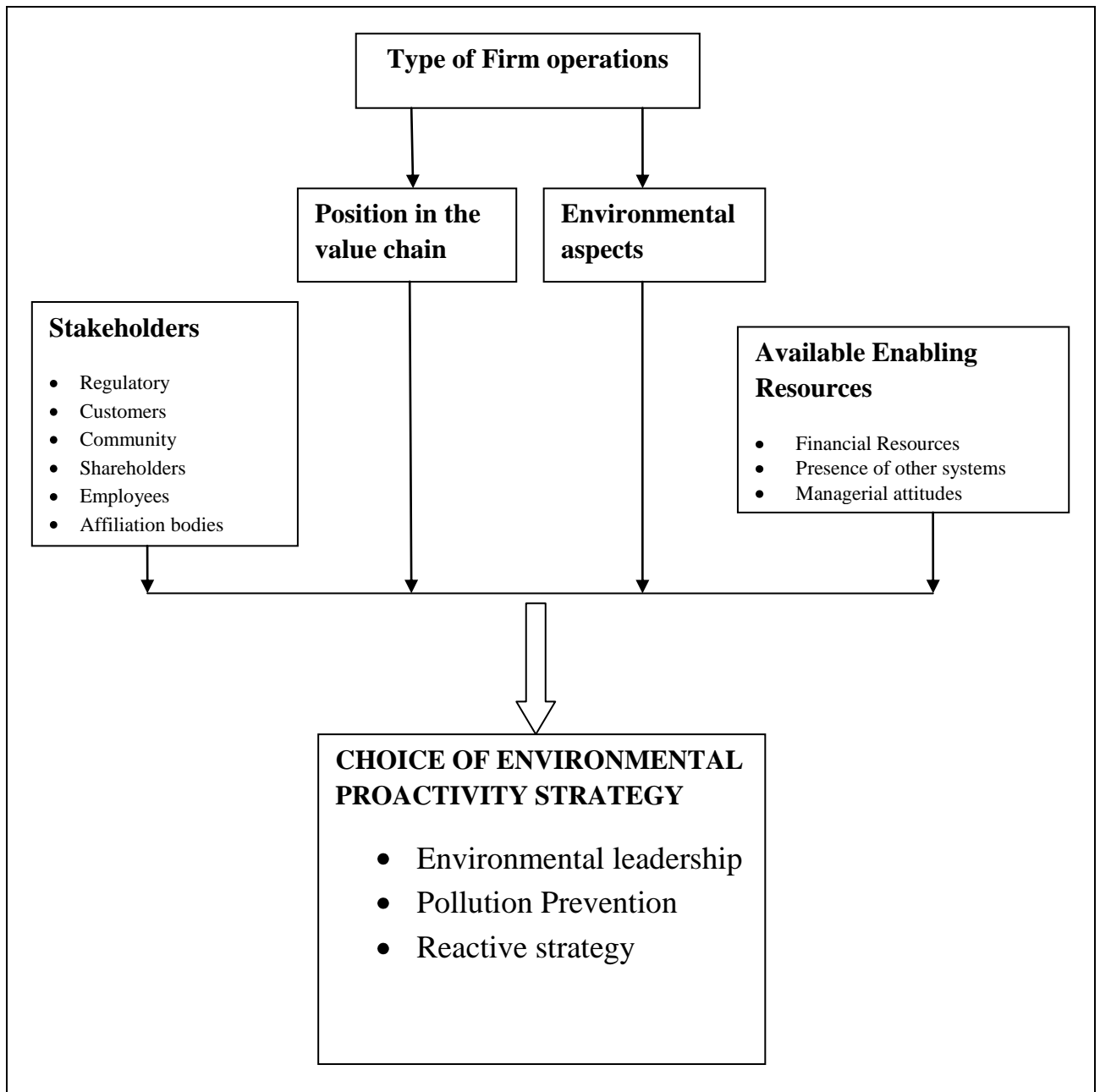
2.7 Summary of gaps filled by the study

After considering the literature available on environmental proactivity and its drivers, this study fills some knowledge gaps found in literature. Where formally drivers of environmental proactivity are looked at either from the stakeholder's theory perceptive or the resource based view perceptive, this study sought to determine how the two lines of thought interact in order to influence proactivity. The study singled out the particular stakeholder perceived to have more salience in environmental proactivity. Since most studies on environmental proactivity have been done in developed countries, this study adds knowledge of environmental strategies employed in a developing country, especially one that has economic problems to contend with. Industries that have often been used in environmental strategy studies are the paper milling, chemical, energy, and manufacturing and food industries. This study explores the poultry value chain, an industry that has not received much attention from scholars investigating environmental proactivity. Seeing that no studies have been done to differentiate the various environmental aspects perceived more crucial by the poultry value chain industries, this current study determined the environmental aspects deemed most important and showed how these influence strategies chosen.

2.8 Conceptual Framework

The conceptual framework is adopted from the Stakeholder Theory by Freeman (1984), its extension by Mitchell et al (1997), the resource based view and the value chain approach. The framework is shown in Figure 4. As mentioned earlier, various factors interact to influence company decisions. Each stakeholder is perceived by the company to have power, urgency and legitimacy, and these three attributes make up each stakeholders salience. Companies yield to the influence of the stakeholder they perceive to have the greatest salience. The position of the company in the value chain influences the environmental strategy chosen, depending on whether the company directly offloads its goods to the public or not. Environmental aspects valued more by the company will influence the choice of the environmental strategy. The financial resources at the disposal of the company will determine how much they can devote in environmental strategies beyond compliance to regulations. In view of these available financial resources, the company will choose a strategy whose initial implementation cost is within its budget.

Figure 2.3: Conceptual framework



(Adopted from the Stakeholder Theory (Freeman, 1984), the resource based view and the value chain approach)

Chapter 3 .0 Methodology

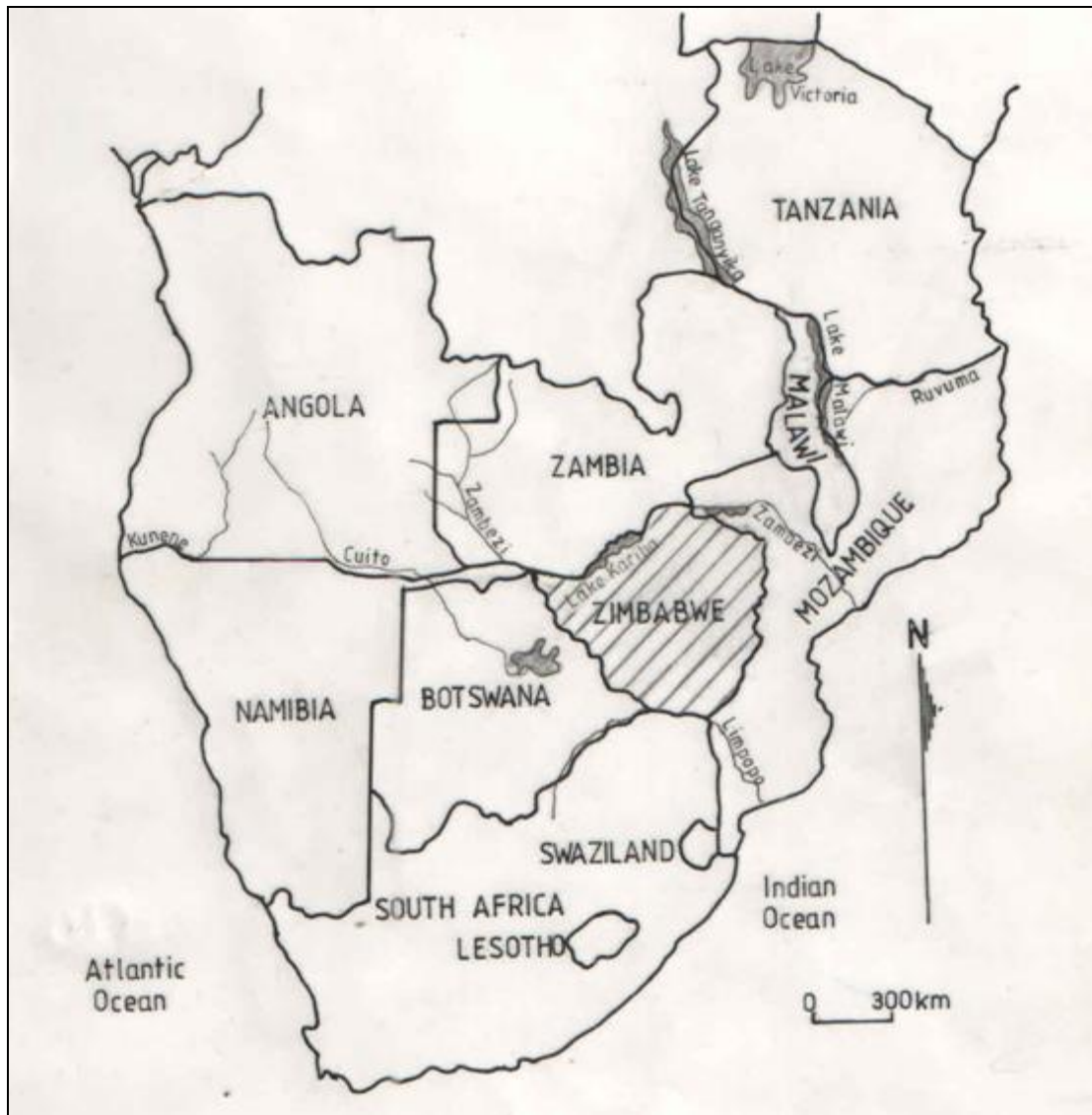
This chapter starts by giving a brief description of the study area and it defines the relationships that exist among companies in the value chain. This is followed by a discussion of the methodology that was used in collecting the data of the study and analysing it.

3.1 Study Area

The study area was the whole country of Zimbabwe. Zimbabwe is a landlocked country found in the southern part of Africa. The country spans a huge and elevated inland terrain that goes down to the north towards the Zambezi basin where it shares a boundary with Zambia. It also declines in the same way in the south towards the Limpopo basin, where it shares a boundary with South Africa. In addition to these two countries, Zimbabwe is bordered by Botswana to the southwest and Mozambique to the east. The country covers an area of 390,757 km² (Encyclopedia of Nations) and as of 2012, it had a population of 13 061 239 (Zimstats Report, 2012, p. 2). The country is divided into 8 provinces with 2 cities having attained provincial state for administrative purposes. A map of the study area in relation to its neighbouring countries is shown in Figure 3.1.

The Zimbabwean economy is essentially agro based, but strong manufacturing, mining, tourism and services sector also exist. The agriculture sector contributes 16% to the gross domestic product. Poultry farming is a major arm of the agriculture sector. Small to medium scale poultry producers account for approximately 66% of the broiler producers and nearly 50% of the egg producers (ZPA, 2013, p. 3). According to FAO statistics, as of 2013, Zimbabwe ranked number 68 in poultry birds' population in the worlds (FAOSTAT, 2013, p. 103). In the year 2012, the poultry industry alone contributed US\$357 million to the Gross Domestic Product of the country (ZPA, 2013, p. 3).

Figure 3.1 Map showing Zimbabwe in relation to its neighbouring countries



Source: Southern African Research and Documentation Centre (2013)

3.1.1 An overview of the Zimbabwe poultry value chain

The poultry industry in Zimbabwe is based on both indigenous and imported poultry strains. The imported strains have become more popular whilst the indigenous strains have remained insignificant due to lack of genetic improvement in all commercially important traits. Therefore in this study only imported strains were considered.

The life cycle of poultry starts with the importation of grandparent stock of either broilers or layer birds as day old chicks. This is done by large breeding farms such as Hubbard Zimbabwe. These

grandparent chicks are raised to maturity and then they will have their offspring that constitutes what is called the parent stock. The parent stock upon maturing will have their offspring that are then sold as broiler day old chicks or layer day old chicks to other commercial farms or to small holder farmers (keeping less than 1000 birds). Broiler chicks are raised until slaughter at an ideal age of 6 weeks whilst layers are raised to maturity at approximately 18 weeks when they start laying eggs that are then put on the market as table eggs.

During the growth of the chickens, stock feed manufacturing companies provide the feed for the birds. Different bird types eat different diets at different ages. Thus there is a diet for grandparent and parent stock of broilers and layers, there is a different diet for layer birds and there is a different diet for broilers. Stock feed manufacturing companies make these feeds according to the recommended specifications for each bird type and supply the farms. They also provide technical advice concerning the best feeding methods and they assist in trouble shooting when the bird flocks develop deficiency or any other health problems. However, some farmers, both large scale and small scale, produce their own stock feed. They find this to be cheaper than buying commercially made stock feed.

Throughout the growing period of the birds, veterinary service providers provide technical advice on the breeding and growing of chickens and they also provide veterinary diagnoses and vaccines. Veterinary service providers are mainly used by large commercial farms, as small scale farmers find them to be expensive to consult. Both veterinary service providers and stock feed manufacturers work very closely with the laboratories. Laboratories carry out tests on feed to make sure it meets the specifications for the particular birds it is supposed to feed. They also carry out tests on birds to test for diseases and carry out post mortems on birds to establish the cause of death, in case it is something that can spread to the rest of the flock.

When the broilers reach slaughter weight, which is usually after 6 weeks, they are slaughtered and processed in abattoirs. The birds are blast frozen at a temperature of -35 degrees Celsius after which they are taken to the retailers where they are sold in the form of whole birds, mixed chicken portions, tray portions or sundry portions. Small scale farmers though slaughter their own birds alone using family members and they freeze them in the normal household refrigerator. They then sell the chickens neighbours directly.

Some companies in the poultry value chain enjoy vertical integration within a conglomerate. One such company is CFI Holdings which has one division called the Crest Poultry Group. In this division are found the stock feed manufacturing company Agrifoods, the veterinary and laboratory service provider Vetco, the farms Crest Breeders, Hubbard Zimbabwe, Glenara and Sunvalley and the abattoir Suncrest. Hubbard Zimbabwe provides broiler day old chicks to Crest Breeders, Sunvalley and Glenara, who then receive stock feed from Agrifoods and receive their veterinary and laboratory services from Vetco. After 6 weeks the broilers are taken to Suncrest for slaughter. However, Hubbard Zimbabwe, Agrifoods and Vetco still have third party customers over and above those in their conglomerate.

In other cases commercial farms have their own hatcheries and make their own feed for their own consumption and do not sell to third party customers. What they then sell to third parties are just the slaughtered chickens and the table eggs. This is the case with Lunar Chickens. Abattoirs such as Morningside have contract growers, whereby they enter into a contract with broiler farmers so that at the end of raising the broilers the broiler producer has his birds slaughtered and marketed by the abattoir.

3.2 Research design.

This study utilised both qualitative and quantitative research methods. These methods were found suitable as they reflect a distinct philosophy on the measurement of social behaviour when combined (Onwuegbuzie, 2002). Qualitative methods limit the generalisation of obtained results because as the purists argue, it is indistinguishable from the context in which it is observed. On the other hand, quantitative methods are said to measure behaviour objectively and the purists argue that behaviour can be determined by universally valid predictors. This would imply that results obtained through quantitative methods can be generalized. However, the quantitative approach tends to ignore situational factors, which in this case would be attributes such as individual firm characteristics (Onwuegbuzie and Daniel, 2003). To get the best benefit from the use of these two methods, sequential methodological triangulation was used, whereby two research approaches were carried out one after the other. This allowed for a higher level of interaction between the approaches. An advantage of such an approach in this study is that the qualitative methods gave insight into the environmental proactivity practices and perceptions held by the poultry industries,

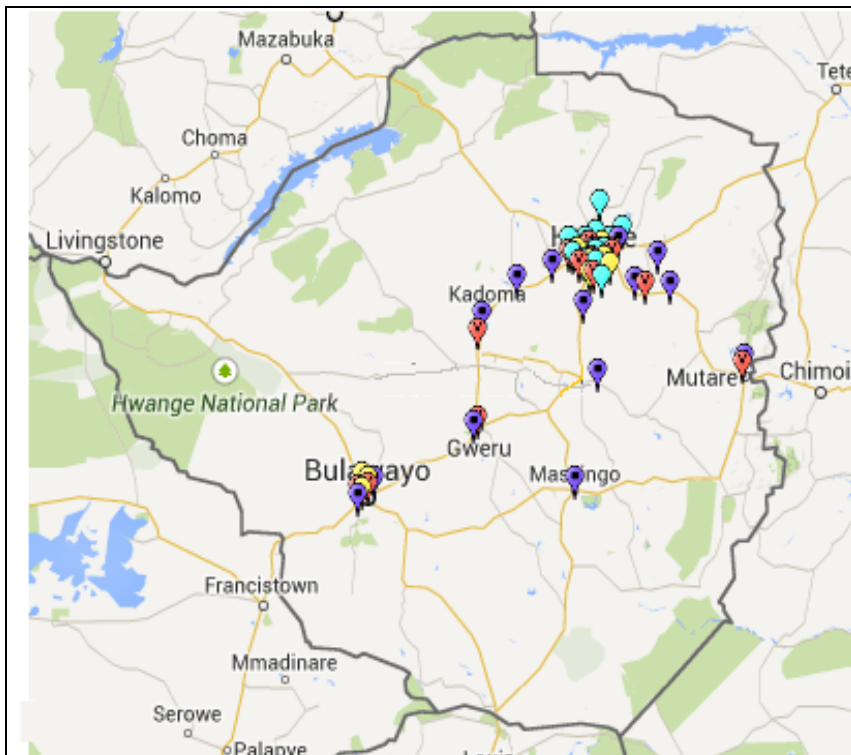
which contributed to the focus of the study. During data analysis, results of the study were checked against the findings of the in-depth interviews, in order to ascertain the level of accuracy on the part of the firms in providing data for the study. Haverkamp (2007) successfully used sequential methodological triangulation in his research on the environmental management in the Dutch food and beverage industry.

One can also talk of the deductive and inductive research methods. Inductive theory builds from cases aiming to produce new theory and deductive theory is used to test existing theory. Abductive theory is a combination of the above and it is the approach that was used in this study. The deductive part in this study is the theoretic framework upon which the study is built whilst the inductive part are the findings derived from the study. The abductive approach enables the discovery of other variables and new relationships (Dubois & Gadde, 2002). This approach was used by Lindblom and Ohlsson (2011) in their study of how different stakeholders influence interacts in environmental strategies of the power companies in Sweden.

3.3 Target Population and sampling

Data for the study was drawn from various companies that are in the poultry industry. The bulk of these companies are found in or around Harare, as shown in Figure 3.2. Harare, the capital city houses the head offices of most companies within the country. The Stockfeed Manufacturers Association, the Zimbabwe Poultry Society and the Farmers Union were consulted for the list of companies that can be used in the research. Listed companies in the three mentioned entities are registered and legit companies that trade with the public; therefore they are bound to give better information since they have a reputation to protect. They follow national regulations and it is easier to give reference to these registered companies. Since the number of listed companies in the poultry value chain was limited, there was no sampling done. Therefore, the study was a census survey. One great advantage to conducting census surveys is the ability to collect better demographic data across the population. All the listed companies were approached with the questionnaire.

Figure 3.2: Distribution of companies used in the study



Source: Fieldwork Data, 2014

The companies were stratified into the following groups, depending on their operations: commercial farms, processors, feed mills and veterinary services. Commercial farms used in this study are those that have the capacity to house more than 20,000 chickens at any given time. For companies with multiple production facilities, the head office was consulted. This is because smaller or inferior production facilities are headed from the head office. The head office is the one that decides what should be implemented at each facility. In addition to this, if there is an environmental manager, he or she is usually stationed at the head office, even though he oversees environmental concerns of all the facilities.

There were cases where several firms belong to one mother company, being subsidiaries of a conglomerate. In such a case, each firm was treated as a standalone entity. This is in line with the definition of a conglomerate as given by the website Investopedia.com which states that, “Each of a conglomerate's subsidiary businesses runs independently of the other business divisions, but the

subsidiaries' management reports to senior management at the parent company.” Proactivity strategies are structured and applied at plant level and therefore, each business unit can have its own particular strategy. Such a case is seen at Rainbow Chickens in South Africa where by at one time they had all their stock feed mills fully certified on ISO 14001 whilst their processing facilities and farms were not certified (Rainbow Sustainability Report, 2011). In addition, legislation differs for the various industries within the chain, regardless of whether several industries belong to the same mother company or not. As for the companies that run the whole value chain within themselves, the stage of the value chain that was considered in this study is the stage that is licensed to provide goods to the public by the government. Thus if a company makes its own stockfeeds but is licensed only to sell day old chicks, it was classified in this study as a farm only.

3.3 Data Collection Instrument

A questionnaire was the main instrument for data collection in this research (Appendix A). Data collected through the questionnaire was developed by considering the objectives of the study. The aim of the survey questionnaire was to measure the level of attention given to the environment by the poultry companies, and to gain insight on the strategies and enabling organizational capabilities in tackling environmental concerns. This forms the longitudinal backbone of the study. The questionnaire was designed for the personnel in charge of environmental concerns in each company. Where there was no particular individual or department that takes care of the environmental issues, the managing director was contacted to assign an individual to fill in the questionnaire. These individuals were targeted because they are involved in projects to improve their products or logistics processes, including fostering partnerships with suppliers and customers.

The questionnaire was divided into two sections. The first section gathered the general data of the company, such as the location, size and the age of the company. It also collected data on the drivers for environmental proactivity. The majority of the questions asked respondents to rank on a Likert scale the extent to which each independent variable is perceived to influence the choice of the environmental proactivity strategy used by the company. Other studies have used comparable scales to measure the influences of variables on environmental activity of companies (Henriques and Sadowsky, 1996; Buysse and Verbeke, 2003). The use of perception scales is in line with previous

studies that employed similar measures (Halkos and Evangelinos, 2002; Sroufe, 2003). The variables measured by this section of the questionnaire using the 5 point Likert scale were:

- Perceived stakeholder pressure
- Priority given to environmental management
- Extent to which environmental management contributes to corporate goals
- Perceived importance of value chain position
- Perceived negative impact of company operations on the environment

2 independent variables required simple “yes or no” answers and these are

- Presence of a sufficient environmental budget
- Presence of other operational systems

The second section of the questionnaire contained a matrix with various environmental practices and respondents were asked to indicate on the matrix whether they had implemented certain practices within their companies (Appendix B). This matrix was used by Abreu et al (2013) in the work they did on stakeholder influence of environmental proactivity in Brazilian companies. The practices mentioned in the matrix have been derived from the environmental proactivity typology done by Gonzalez-Benito and Gonzalez –Benito (2006), as shown in Table 1. Notably, these activities are in line with ISO14001 guidelines on environmental management system implementation (Netherwood, 2004). The activities being referred to involve planning practices, which measure the organizational structure needed to establish a more proactive strategy. Included too are the operational practices which need to be systematically implemented in order for the company to improve its environmental performance. Companies indicated whether they have not implemented, partially implemented or fully implemented each activity.

3.4 Data Collection

A pilot survey was firstly conducted with 2 companies from the Midlands Province, 2 companies from Matebeleland and 3 from Harare. These 7 companies used in the pilot survey were randomly picked, with the purposes of improving the questionnaire. The pilot survey was a success and this prompted the beginning of the actual survey.

Companies were initially contacted through telephoning and the researcher set up brief appointments with the target respondents. The researcher used the appointment to briefly but clearly explain to the potential respondent the purpose of the questionnaire. This was done to put the mind of the respondent at ease and decreases the chances of having missing data on the returned questionnaire. Since the research design entailed using the sequential triangulation method, several semi structured interviews were conducted at this stage to get indepth information from the participants. According to Bryman and Bell (2007) semi structured interviews refer to “a context in which the interviewer has a series of questions that are in the general form of an interview schedule but is able to vary the sequence of questions.” Thus these enabled the researcher to get more insight into environmental management practices as well as the reasons and motives that could explain the quantitative results and thus obtain maximum data. In his study of the Dutch food and beverage industry, Haverkarp (2007) used sequential triangulation of several semi-structured interviews and two survey questionnaires, which were conducted in over a period of 3 years.

After conducting the semi structured interview, the target respondents were asked whether they preferred the hard copies or soft copies of the questionnaires. All respondents requested soft copies of the questionnaires. Filled in questionnaires were emailed back to the researcher, and the returned questionnaires were immediately checked for missing data. In order to minimise unit non response, the respondents were politely reminded through email not to forget filling in the questionnaire if they had not done so within 8 working days.

The unit of analysis is the individual plant or business unit. Such a choice is made due to the fact that the urge to take care of the environment will be affected by local circumstances, such as the

distance to a local community or nature conservation resources (Klassen and Whybark, 1999; Sharma and Henriques, 2005).

3.5 Data Analysis

Microsoft Excel was used to sort out data and carry out the additional analysis such as the mean values and standard deviations for the research variables. Frequencies of the various responses were worked out, interpreted, and explained in terms of the general trends that emerged from the analysis. Sorting out data enables one to see if there is missing survey data, especially item non response. Item non response occurs when certain questions in a survey are not answered by a respondent or the answer provided by respondent does not make sense. In cases where item non responses were noted, information from the semi structured interviews was examined to see if it could provide the missing data. Questionnaires that were wrongly filled in beyond repair were excluded from the survey. Diagrammatic data representations were used in order to compare and understand better the aspects of the study. These include bar graphs, tables and pie charts.

The SPSS (version 19) program was used for statistical data analysis. Non-parametric techniques were mainly used for the analyses. This was necessary to deal with the fact that the majority of the research variables were measured on an ordinal scale. Various statistical tests were used to test the hypotheses of the study.

3.5.1 Levels of measurement used

It should be noted that analysis of data for environmental proactivity was done at interval level. This is because the data obtained on the matrix was treated like Likert scale data. A distinction must be made between a Likert type item and the Likert scale. Clason and Dormody (1994) identified Likert-type items as single questions that use some aspect of the original Likert response alternatives. A Likert scale, on the other hand, comprises a series of four or more Likert-type items that are combined into a single composite score/variable during the data analysis process. Combined, the items are used to provide a quantitative measure of a character or personality trait.

The researcher is only interested in the composite score that represents the character/personality trait. Since the matrix with practices of environmental proactivity contained more than 4 Likert type items and since the researcher was interested in the composite score representing the environmental proactivity, the attribute environmental proactivity was analysed at interval scale (Boone and Boone, 2012).

This same reasoning was used to compute weighted average scores on various independent variables measured on the Likert scale. For example, in trying to investigate the level of priority placed on environmental concerns by companies in the poultry value chain, after collecting data from all the participants, the researcher then computed average weighted scores for the four categories of business types found in the poultry value chain (farms, processors, service providers and stock feed manufacturers). This weighted average value would give the researcher an overview of how the business category is performing in that aspect. However, on the part of the independent variables, these weighted averages were not used in statistical testing. They were only used in descriptive statistics to give overview impressions. In statistical analysis Likert scale data was entered as is.

3.5.2 Kruskal Wallis

The Kruskal-Wallis H test is a rank-based nonparametric test that is used to determine if there are statistically significant differences between two or more samples. The dependant variable must be measured on the interval or ordinal scale. The independent variable should consist of two or more categorical independent groups. The Kruskal Wallis test is an omnibus test statistic and therefore it cannot tell which specific groups of the independent variable are statistically different from each other.

Most research variables were compared using the Kruskal Wallis Test, since the dependant variable, which is the level of proactivity, was measured on the ordinal scale. The Kruskal Wallis test was used to test the hypothesis that there is no difference in level of environmental proactivity exhibited in the poultry value chain. This will determine if the levels of environmental proactivity differ within the industries of the poultry value chain (i.e. the farms, veterinary services, stockfeed manufacturers and processors).

3.5.3 Mann U Whitney test

The Wilcoxon Mann Whitney Test is one of the most powerful nonparametric tests for comparing two populations. It tests the hypothesis that the two populations have identical distribution functions. It is used when the independent variable has only 2 independent categorical groups and the dependent variable is measured on the ordinal or interval scale. This test was used to test the hypothesis that there is no relationship between the presence of other systems within a company and the level of proactivity shown by the company.

3.5.3 Multiple regression

Multiple regression is used when one wants to predict the value of a dependant variable based on the value of two or more independent variables. It allows one to determine the proportion of variance in the dependent variable that can be explained by the independent variables. The study used the regression analysis statistical technique to find the relationship between the importance placed on various environmental aspects and the environmental proactivity level shown by the company. Thus it was used to test the hypothesis that there is no relationship between the amount of focus placed on managing certain environmental aspects by a company and the level of proactivity that company shows.

3.5.4 Spearman's Rank order correlation

The Spearman's rank –order correlation is the non parametric version of the Pearson product moment correlation. It measures the strength of association between two variables that are either measured on the ordinal, interval or ratio scales. However, it requires that the two variables have a monotonic relationship. This test will be used to measure the strength of association between the perceived impact company operations exert on the environment and the priority given to environmental concerns. It will also be used to measure the correlation between the level of priority given to environmental issues and the extent to which environmental issues contribute towards corporate goal

3.6 Limitations of the study

Limitations to the collection of data included having to deal with scepticism from the respondents. Some respondents were under the impression that the research was being done in order to closely scrutinise their operations with the aim of penalising them. The researcher had to fully explain that the research was for academic purposes only and that their company names would not appear in the final report. Such scepticism could have led to the respondents giving false data in order to appear as if they are doing more for the environment. However, some companies did score badly on the measure of proactivity and therefore, this gives some confidence that the data availed by respondents was the truth. There were respondents too that failed to respond to the questionnaire due to company privacy policies.

Since questionnaires are structured instruments, they allow little or limited flexibility to the respondent with respect to response format. In this survey, in cases where respondents desired to qualify their answers, they were unable to do so due to the structure of the questionnaire. This disadvantage was minimised by having the semi structured interview whereby the respondent could freely express themselves.

Some of the terminology used in the questionnaire may have been unfamiliar to the respondents. In addition to the researcher putting definitions of terms on the first page of the questionnaire, the researcher also invited the respondents to freely seek clarification where they did not understand. However, it is possible that some respondents simply did not bother to seek clarification where they did not understand, leading to them giving incorrect information. The researcher tried to counter this by using the information gathered during the semi structured interviews.

Chapter 4 .0 Results and Discussion

This chapter presents the results of the survey data collected for use in the research, derived from both qualitative research methods and quantitative research methods. It starts by discussing the general characteristics of the study samples, the response rate as well as the representativeness of the various business types in the survey. It also gives an overview of the positions of the respondents who filled the questionnaire on behalf of their companies. Then it discusses the findings of the study based on the set objectives, how environmental proactivity was assessed, and the findings within the poultry industry. The variables under study are evaluated and results for the statistical tests carried out to check for relationships between these variables are recorded and discussed.

4.1 Baseline description of companies

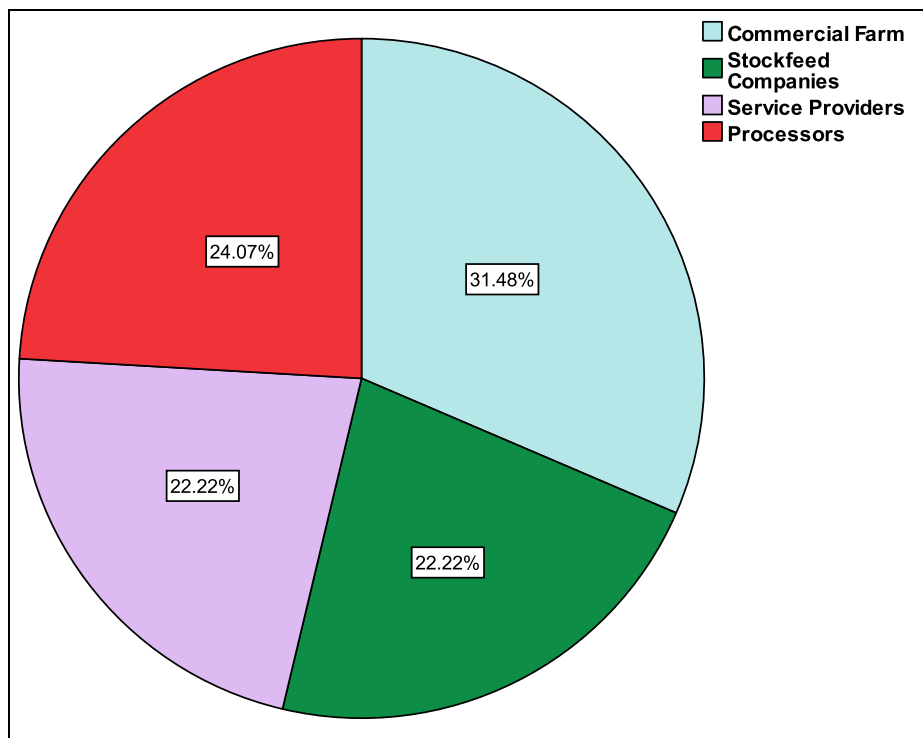
A total of 71 companies in the value chain were approached with the questionnaire. Of these companies, 39 responded to the questionnaire without requiring a reminder, whilst 21 responded after receiving a reminder via email. 11 companies did not respond to the questionnaire; the majority of these exhibited scepticism at the semi structured interview stage and thought the research was backed up the Environmental Management Authority of Zimbabwe, and hence they feared close scrutiny of their operations in case they would be penalized. Other potential respondents cited company privacy policy as hindering them from participating. It should be noted that all the potential respondents requested soft copies of the questionnaires and they all opted to respond via email. Of the 60 returned questionnaires, 6 were not usable; they had conflicting information which could not be matched to the semi structured interview information. Table 4.1 shows the actual number of participants per company type, whilst Figure 4.1 shows the percentages. The response rate of the survey was 76%, which is reasonable. This is in line with the recommendation from Baruch (1999) who, after his research on what could and should be a reasonable response rate in academic studies, recommends that a research targeting representatives of companies should have a response rate of not less than 23%.

Table 4.1: Summary of Participants per company type

Company Type	No. of Approached Companies	No. of Companies that Responded	Spoilt Questionnaires	Usable Questionnaires
Commercial Farm	22	20	3	17
Stockfeed Companies	17	12	.	12
Service Providers	16	13	1	12
Processors	16	15	2	13
Total	71	60	6	54

Source: Fieldwork Data, 2014

Figure 4.1: Percentage composition of respondents



Source: Fieldwork Data, 2014

4.1.1 Location of participating companies

Table 4.2 shows the distribution of the participating companies per province. The country is divided into 8 provinces with 2 cities having attained provincial state for administrative purposes. Only the provinces with the relevant companies for this study are mentioned. As can be seen the majority of the companies are found in the Harare province and in Mashonaland East. This is not to say there are no poultry companies in the rest of the country. It simply means most of the companies have their head offices in the provinces shown.

Table 4.2: Distribution of Companies by Province

Province	Commercial Farms	Stockfeed Companies	Service Providers	Processors
Harare	7	11	9	5
Bulawayo	2		1	2
Midlands	2			2
Masvingo	2			
Manicaland	1		2	1
Mashonaland East	3	1		3

Source: Fieldwork Data, 2014

4.1.2 Geographic location of the companies in relation to the nearest CBD.

Table 4.3 shows the location of the companies in relation to the nearest business centres. All service providers are located within 5km from the nearest commercial business district (CBD). As the semi structured interview revealed, this is because they want to be accessible to all potential clients, so they strategically place themselves near the hub of commercial activity. Stockfeed manufacturing companies are located from as near as 3 km to the CBD to as far as 23km from the nearest CBD. However, none are found in the CBD because of the nature of their operations, which bring about various pollutants. All commercial farms are found starting from 11km from the CBD going

upwards. Respondents to the semi structured questions revealed that they require vast pieces of land to set up their bird houses, and this land is found away from the CBD. They also do this for biosecurity reasons. Slaughter houses and egg houses are located 10-20km from the CBD. Qualitative research methods revealed that this is to enable easier transportation of fresh goods to the markets. They cannot be any nearer to the CBD due to their operations that produce large amounts of water waste.

Table 4.3: Distance from the nearest commercial business district

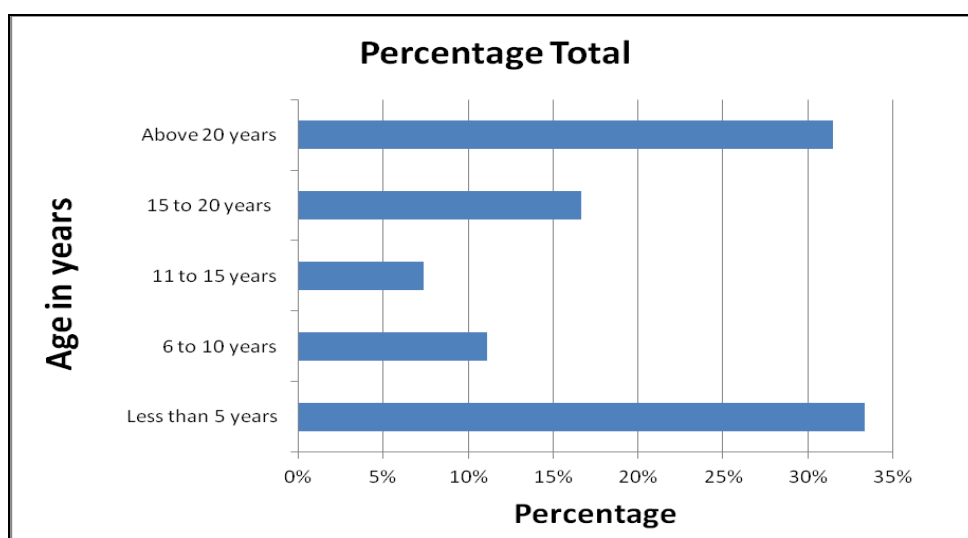
	0 to 5km	6 to 10km	11 to 15km	16 to 20km	Above 20km
Commercial farm	.	.	24%	47%	29%
Stockfeed Company	31%	38%	15%	8%	8%
Processor	.	.	42%	58%	.
Service Provider	100%

Source: Fieldwork Data, 2014

4.1.3. Age of participating companies

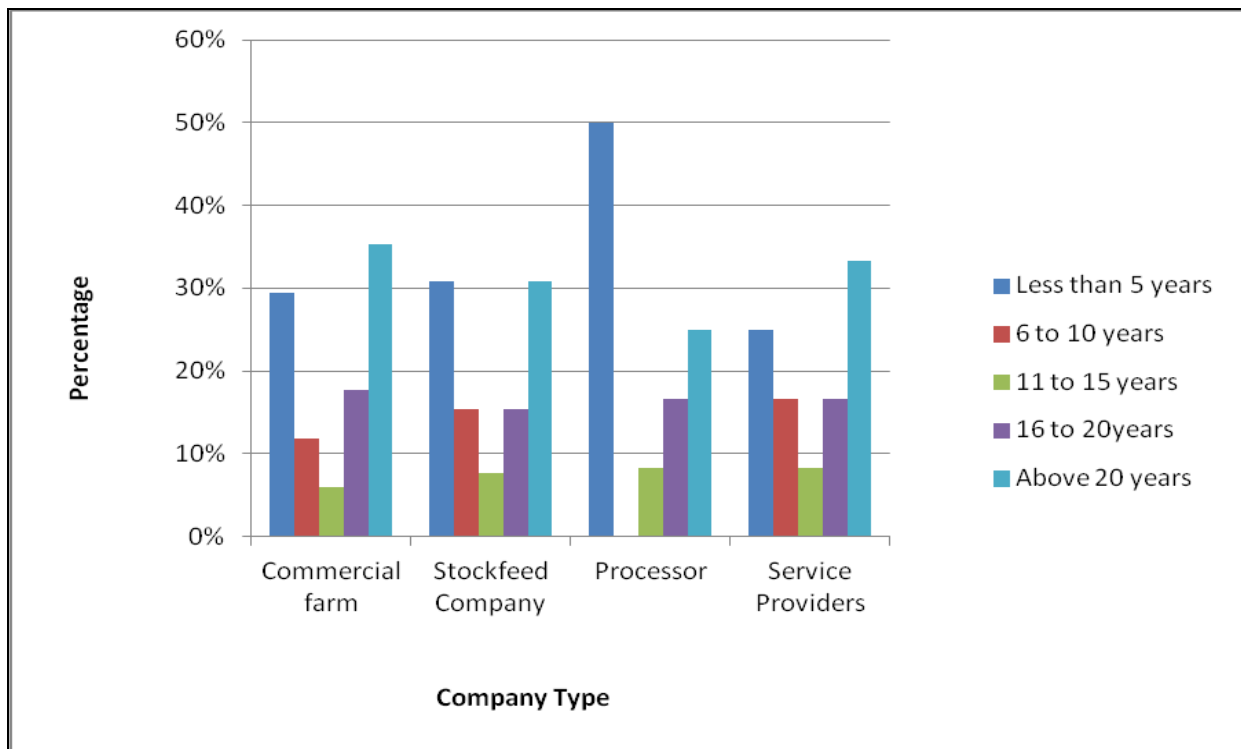
The ages of the companies used in the study are indicated in Figure 4.2 and 4.3.

Figure 4.2 Ages of participating companies



Source: Fieldwork Data, 2014

Figure 4.3: Age based on business type



Source: Fieldwork Data, 2014

Figure 4.3 shows the ages of the companies based on the business type. In the four company types, there are fewer companies that are aged from 11 to 15 years. This is because that period was when the effects of the economic meltdown of the country started to be felt by businesses. Hence there were no available funds to start new businesses. During that period, industries collapsed such that more people were losing their jobs and seeking alternative livelihoods such as poultry rearing. Therefore, in the following period, that is 6-10 years ago, new stock feed companies and service providers emerged, in order to provide goods and services to the small holder poultry farmers and the backyard poultry producers. In the year 2008, companies began dealing using foreign currency and in 2009 the Zimbabwean economy was officially dollarized, with the adoption of the US dollar, the South African Rand, the Botswana Pula and the British Pound. This made trading easier, resulting in an increase in the number of poultry companies. Day old chick production increased, raw materials for stock feed production could be imported, hence commercial poultry farms also increased in number. In order to cater for the large volumes of live chickens that were being produced, poultry processing companies also increased in number.

4.1.4 Position of Respondents

Table 4.4 shows the position of the respondents. None of the companies interviewed have an environmental manager. A good number of the companies have a Safety, Health and Environmental manager, whose job encompasses environmental management in addition to safety and health concerns. The category labelled “other” consists of diverse functions, including the regulatory veterinarian (in the case of service providers), the technical director, the operations executive/manager and the marketing manager..

Table 4.4: Position of Respondents

	Commercial farms	Stockfeed Companies	Processors	Service Providers	Total
Environmental Manager	0%	0%	0%	0%	0%
SHE manager	18%	33%	23%	8%	20%
Quality manager	12%	17%	38%	33%	24%
Production Manager	35%	17%	15%	8%	20%
Owner/CEO	18%	8%	8%	25%	15%
General Manager	12%	0%	0%	8%	6%
Other	6%	25%	15%	17%	15%

Source: Fieldwork Data, 2014

The position of the respondents in the commercial farms indicates that environmental responsibilities in the farms are frequently delegated to the production department. The argument, as one respondent put it, is that the production department is the generator of waste and hence that department should manage its waste. Due to the high levels of dust that are found in the stock feed companies, it is imperative that the workers have various health checks on an annual basis, hence the presence of SHE managers in these companies, who coordinate such health examinations. 38%

of the respondents in the processing companies were quality managers. This is not surprising because poultry processing companies also fall in the food sector, and quality matters in this sector are of paramount importance in line with consumer concerns related to food safety scandals and globalization of food production (Trienekens and Zuurbier, 2007).

Overallly most responses in the survey were obtained from the quality manager. There is an equal score for the questionnaires answered by the Safety and Health Manager and the Production Manager. The fact that 24% of the questionnaires were answered by a Quality Manager indicates that environmental management in the poultry industry is at times delegated to the head of another depart which in this case is the head of the Quality department. Haverkemp (2007) also noted in the Dutch food industry that environmental management was left to be attended to by the head of another department. Some aspects of environmental management are similar to aspects of quality management; hence having both under the same manager can be to an advantage. However, such an arrangement can bring about conflict of interest. For example, if the production manager is given the mandate to monitor and implement good environmental practices, he will have a problem when a scenario comes up that requires that he reduce his production output to honour environmental good practices. Another problem is that having environmental management run from another department will see that departmental head implementing environmental practices only within his department whilst neglecting the rest of the company operations. A production manager whose responsibility involves environmental management will seldom go to the vehicle garage to see if they are cleaning up their oil spills appropriately or to see if the company fleet of vehicles has been serviced well to decrease carbon emissions.

The fact that in some cases the questionnaire was answered by the CEO, the general manager or a director (covered by the category other) may be an indication of growing attention for the environment from a strategic point of view (Haverkamp, 2007).

4.1.5 Company size

The company size in this project was measured using the number of permanent employees in each company. Respondents were asked to state the number of full time employees in their employ, with the ranges being 5-50, 51-100, 101-150 and above 150. Apparently companies in the same category

have the same number of employees. All service providers have 5-50 permanent members of staff. Processing companies have 50-100 permanent employees whilst stock feed manufacturers have 100-150 employees. Commercial farms have over 150 members of staff. Since in this project the companies have already been categorized, company size will not be tested, since the company size categories are similar to the business type categories.

4.2 Attitudes and perceptions of the industry towards environmental issues

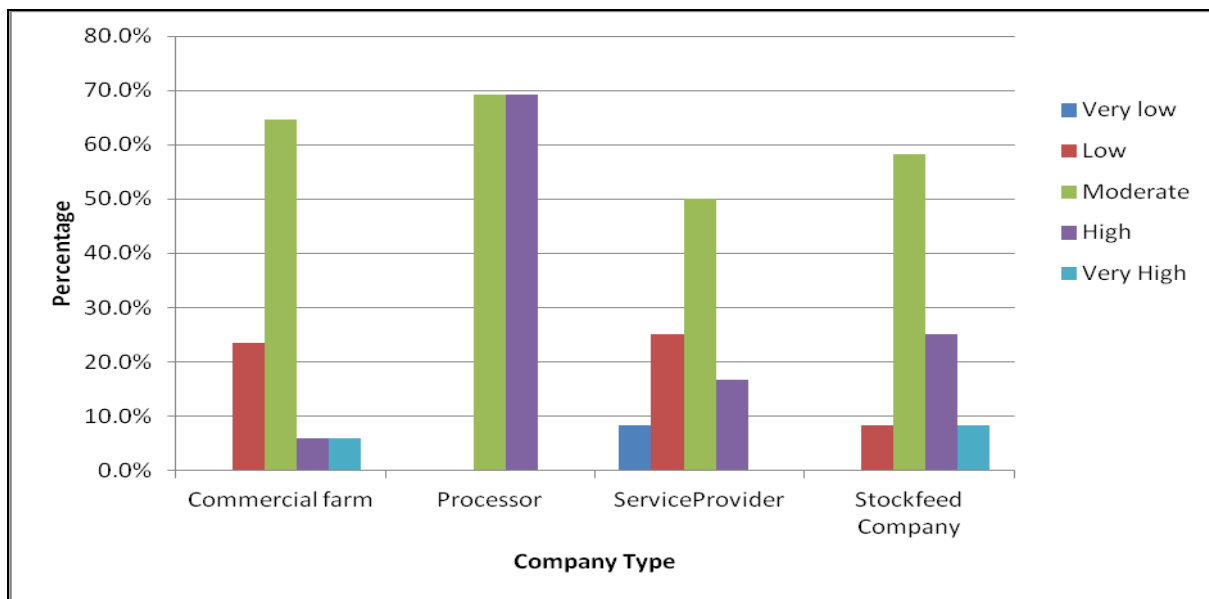
The first objective of the study was to investigate the general attitude of the industry towards environmental management. In order to do this, three parameters were measured and these were:

- The perceived impact of company operations on the environment
- The priority given to environmental issues by the individual companies
- The contribution of environmental management to corporate goals

4.2.1 Impact of company operations on the environment

Respondents were asked to state on a 5 point Likert scale (ranging from 1= very low to 5= very high) the overall negative impact they perceived their organizational operations had on the environment. The mean value of their responses was 3.1, implying that the poultry industry companies perceive that their operations have a moderate negative impact on the environment. This is supported by the fact that the mode in each of the company types is the “moderate” impact response. Figure 4.4 demonstrates the responses provided by the different company types.

Figure 4.4: Perceived impact of operations on the environment



Source: Fieldwork Data, 2014

Due to the fact that the different positions of the respondents may have implications with respect to their answers on the question on perceived level of negative environmental impact from company operations, the answers to this question were checked for the respondent's position, using the Kruskal Wallis test. No significant differences were found among the respondents' positions for the responses pertaining to the extent to which company operations impact negatively on the environment ($H(5)=6.959, p=0.224$). The result from SPSS is shown in Figure 4.5.

Figure 4.5: Kruskal Wallis to show that there is no difference on perceived impact of company operations across categories of respondent position

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Impact on environment is the same across categories of respondent position.	Independent-Samples Kruskal-Wallis Test	.224	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Total N	54
Test Statistic	6.959
Degrees of Freedom	5
Asymptotic Sig. (2-sided test)	.224

Source: Fieldwork Data, 2014

4.2.2 Priority Companies give to environmental concerns

On a Likert scale ranging from 1-5 (1=very low and 5=very high), the respondents were asked to state the priority that environmental concerns receive in their companies when everything is normal in a business sense. The results are summarized in Table 4.5 and figure 4.6. Included in Table 4.5 are the mean scores for each of the four business types based on the Likert scale, with the standard deviations in brackets.

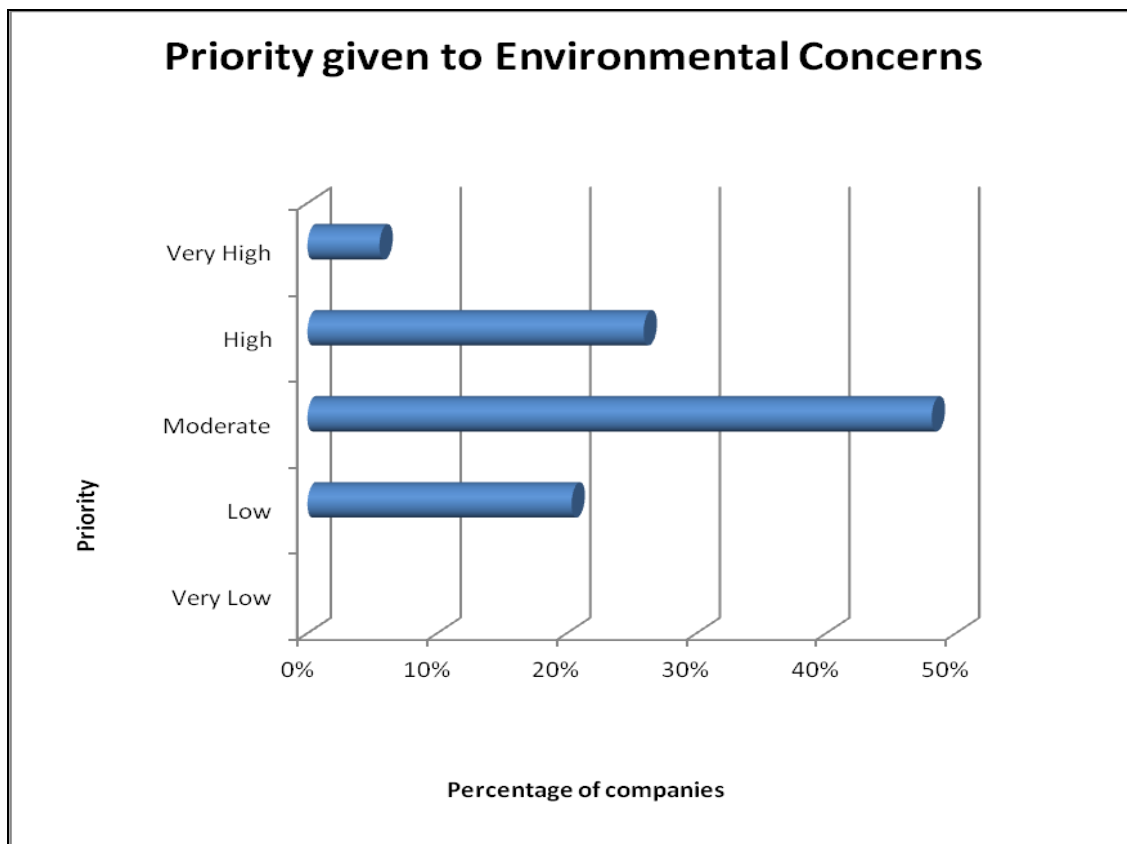
Table 4.5: Priorities given to environmental concerns by companies

	Very Low	Low	Moderate	High	Very High	Weighted Mean Score
Commercial farm	.	29%	47%	18%	6%	3 (0.87)
Stockfeed Company	.	17%	33%	33%	17%	3.5(1.00)
Processor	.	.	62%	38%	.	3.4(0.51)
Service Provider	.	29%	47%	18%	6%	2.8(0.72)

Source: Fieldwork Data, 2014

Overall mean 3.2 (0.82)

Figure 4.6: Priority given to Environmental Concerns



Source: Fieldwork Data, 2014

None of the companies said they give low priority to environmental concerns. Based on these descriptive statistics, it can be said that commercial farms give moderate priority to environmental concerns, stock feed companies and processors give moderate to high priority to environmental concerns and service providers give the least priority that is just below moderate. It is possible that stockfeed manufacturers and processor give more priority to environmental concern due to the fact that their operations are deemed as producing more waste as compared to the other business types.

To ascertain if there is a correlation between the priority given to environmental concerns and the perceived impact company operations exert on the environment, Spearman's Correlation Coefficient was computed. It was found that there is a moderate positive monotonic correlation between the perceived impact company operations exert on the environment and the priority given to environmental concerns ($\rho_s=0.73$, $n=54$, $p<0.01$). Figure 4.7 shows the result table generated from SPSS. It follows therefore to say that in the poultry industry, the more a company perceives its operations are impacting negatively on the environment, the more priority it gives in taking care of environmental concerns. However, this does not then mean companies in the poultry value chain are leaders in championing going green. As Figure 4.5 indicates, the majority of the companies only give moderate priority to environmental concerns. Only 30 % of the companies give environmental issues high to very high priority.

Figure 4.7: Spearman's correlation between the perceived impact company operations exert on the environment and the priority given to environmental concerns

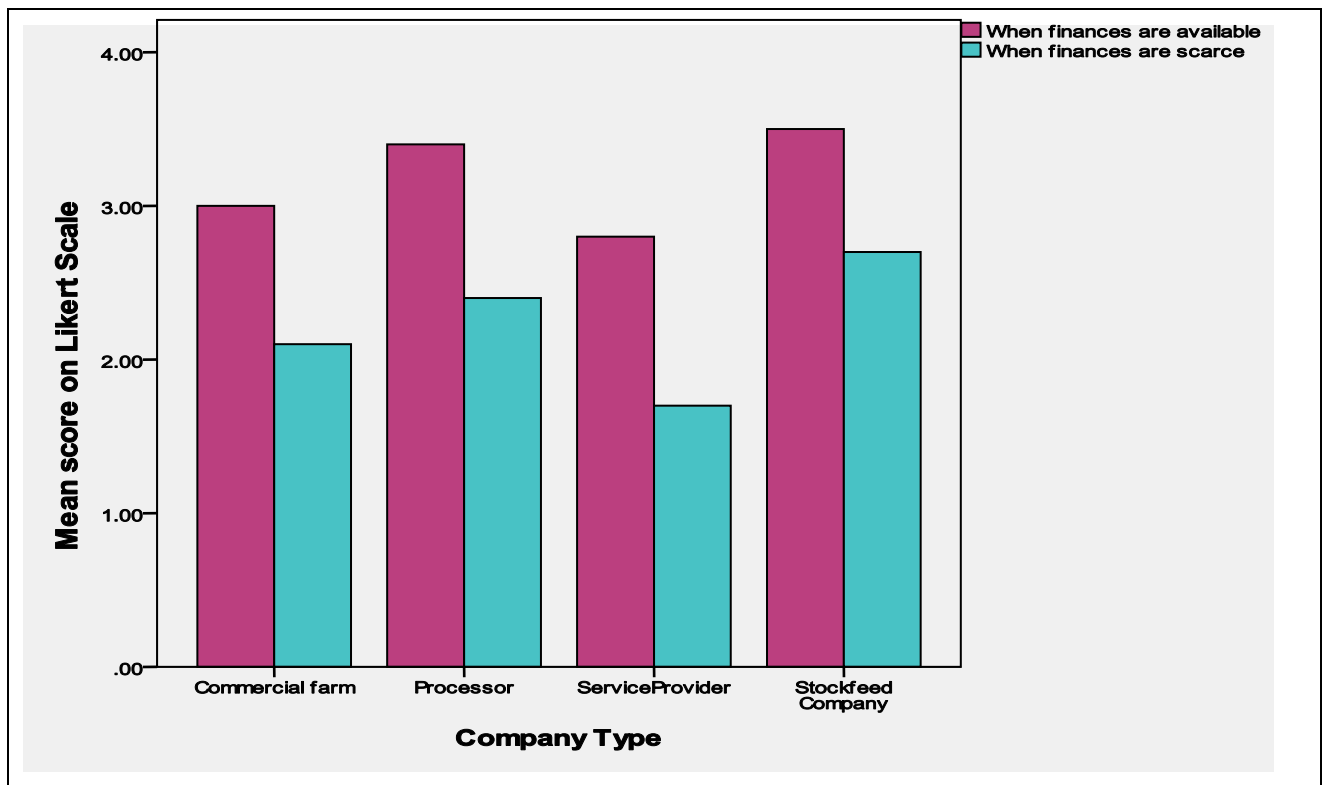
Correlations				
			Priority given	Extent contribution
Spearman's rho	Priority given	Correlation Coefficient	1.000	.730**
		Sig. (1-tailed)	.	.000
		N	54	54
	Extent contribution	Correlation Coefficient	.730**	1.000
		Sig. (1-tailed)	.000	.
		N	54	54

** . Correlation is significant at the 0.01 level (1-tailed).

Source: Fieldwork Data, 2014

Respondents were also asked if the priority given to environmental concerns decreases with increased financial constraints. 11% of the respondents said that priority given to environmental concerns is not affected by financial constraints. The companies that lie in the 11% are among the 30% who give environmental concerns high priority and they are the same companies that are displaying a greater level of proactivity. These companies said they view environmental management as an integral part of their operations that they cannot dispense of, being viewed as equally important as the production process itself. Thus they will always award the environment the attention it needs. The remaining respondents confirmed that priority would become low once finances were constrained, with 24% of the respondents attesting that priority given to environmental concerns would go to the lowest point in the presence of a finance crisis. The interviews conducted revealed that industries felt they could slacken in taking care of the environment and managing their consumption and waste in order to channel maximum resources in keeping the business going. The average scores on priority given to the environmental issues in the presence of financial constraints and in the absence of financial constraints are compared in Figure 4.8.

Figure 4.8: Comparison of priority awarded environmental concerns when financial resource differ

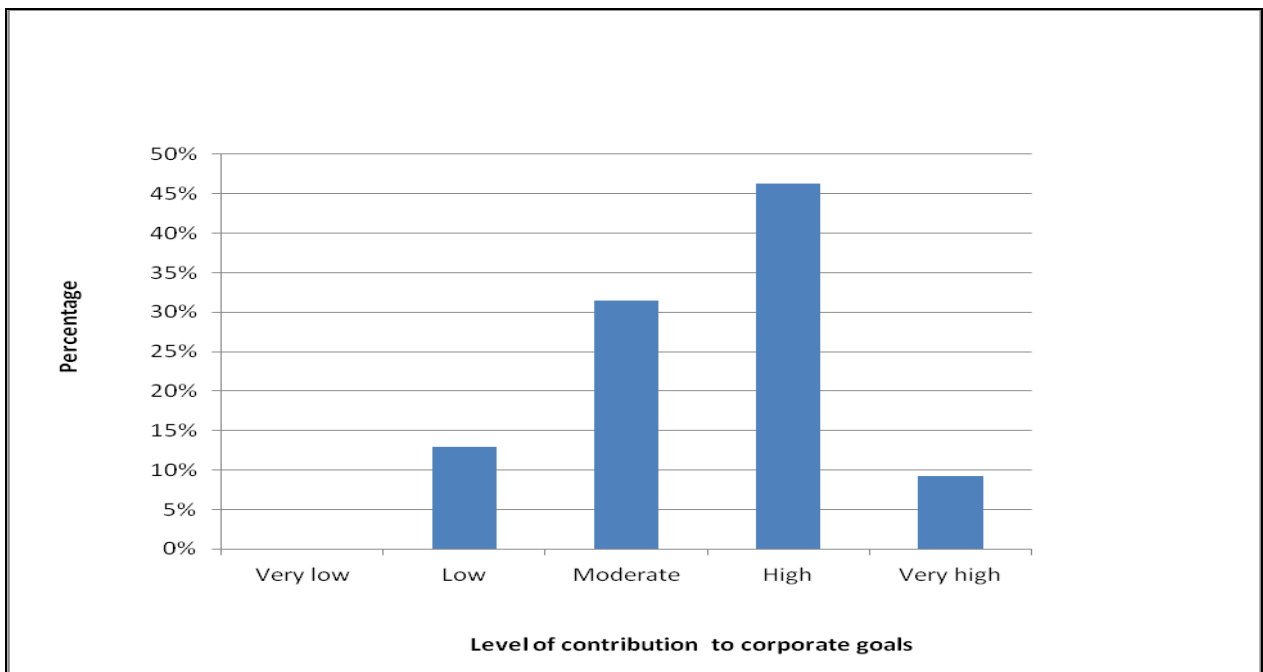


Source: Fieldwork Data, 2014

4.2.3 Contribution of environmental management to corporate goals

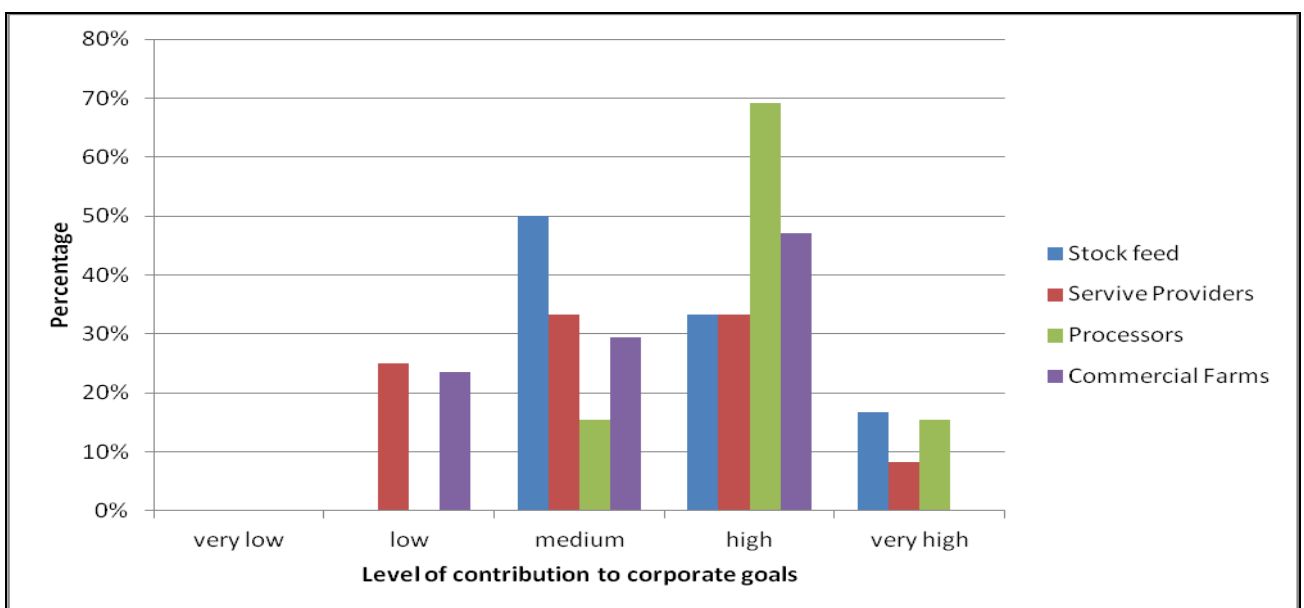
Company representatives were asked to state the extent to which environmental concerns contribute towards corporate goals, on a scale of 1-5, 1 being very low and 5 being very high. A summary of the responses obtained are shown in Figure 4.9. Figure 4.10 shows the percentage of companies in each category and the responses they gave. The average score of the companies on this scale was 3.1. Hence environmental management does seem to moderately contribute to corporate goals of the industry. However, this does not necessarily mean the industry is showing a high level of proactivity, as company goals differ. In some cases too, companies set goals they cannot achieve.

Figure 4.9: Contribution of environmental management to corporate goals for the whole industry



Source: Fieldwork Data, 2014

Figure 4.10: Contribution of environmental management to corporate goals per business type



Source: Fieldwork Data, 2014

The relationship between the level of priority given to environmental concerns in the company and the extent to which environmental management contributes to corporate goals was tested using the Spearman's correlation coefficient. It was found that there is a strong positive monotonic correlation between the level of priority given to environmental issues and the extent to which environmental issues contribute towards corporate goal ($\rho_s=0.73$, $n=54$, $p < .001$). This is logical because companies that let environmental issues contribute towards their corporate goals will tend to place more value on environmental management. The correlation table is shown in figure 4.11.

Figure 4.11: Spearman's Correlation between the level of priority given to environmental issues and the extent to which environmental management contributes towards corporate goal

Correlations				
			Priority given to environmental concerns	Contribution to corporate goal
Spearman's rho	Priority given to environmental concerns	Correlation Coefficient	1.000	.730**
		Sig. (1-tailed)	.	.000
		N	54	54
	Contribution to corporate goal	Correlation Coefficient	.730**	1.000
		Sig. (1-tailed)	.000	.
		N	54	54
**. Correlation is significant at the 0.01 level (1-tailed).				

Source: Fieldwork Data, 2014

Due to the fact that the different positions of the respondents may have implications with respect to their answers on the questions on level of priority given to environmental concerns of the company, the answers to these questions are checked for the respondent's position. No significant differences are found for the responses pertaining to corporate goals given by personnel of various position ($H(5)=10.4682$, $p=0.063$), as shown in figure 4.12.

Figure 4.12: Kruskal Wallis showing that there is no difference in the distribution of score on corporate goal across respondent's position

Hypothesis Test Summary			
Null Hypothesis	Test	Sig.	Decision
2 The distribution of corporate goal is the same across categories of respondent position.	Independent-Samples Kruskal-Wallis Test	.063	Retain the null hypothesis.

Total N	54
Test Statistic	10.468
Degrees of Freedom	5
Asymptotic Sig. (2-sided test)	.063

Source: Fieldwork Data, 2014

The survey results show that the players in the poultry industry perceive that generally their operations have a medium impact on the environment. This is shown by the fact that on the question of perceived operation impact, the mean response was 3.1 and the mode in each business type was 3. Closely linked to the perceived negative environmental impact of the company operations is the priority given to environmental concerns by the companies. As the Spearman Correlation Coefficient shows, there is a positive significant monotonic relationship between the two. It follows therefore that a company that views its operations to have a negative impact on the environment will also prioritise cleaning up its act and having in place measures to manage its environmental impacts. It then follows that once environmental management is prioritized by a company, it contributes towards corporate goals. Noteworthy though, is the fact that most companies across all the business types confirmed that when financial resources are few, environmental concerns are prioritized less. This shows that much as environmental concerns are prioritized in the company, they are not at the top of the company's concerns. It gives the

impression that environmental management is considered as a marginally beneficial activity which can quickly be dispensed of to cut the cost of production (Thompson et al, 2010).

4.3 Environmental Proactivity Strategies in the Poultry Value Chain

This section will report on how proactivity was measured in this study. It will also examine the environmental proactivity strategies employed by the companies in the poultry industry and the most influential stakeholders in the selection of these strategies

4.3.1 Measure of Environmental Proactivity

The second objective of this study was to identify the environmental proactivity strategies in use in the poultry value chain. In order to do this, firstly the measure the environmental proactivity exhibited by each company had to be measured. A comprehensive and broad list of environmental management practices was built from the literature. For each practice, each company was asked to state whether they have fully implemented the practice, have partially implemented it, or they have not implemented it at all. Table 4.6 shows the percentage of companies partially or fully implementing each practice.

As shown in Table 4.6, only two practices are fully or partially implemented by all companies. Remediation of environmental damage is mandatory, hence all companies do it. The difference comes in that some companies do it before regulatory authorities command them to do it; others do it only after they have been instructed. 13% of the companies have invested in carbon dioxide emission reduction programs. This low implementation may be due to the lack of knowledge of such practices. Solid waste recycling and reduction is fully or partially seen in a total of 78% of the companies. There are various other industries that take up waste from the poultry industry for their own use. Such is the case, for example of the waste from commercial farms. The litter from chicken can be passed on to cattle ranchers, who will incorporate this litter into the diets of their animals. Periodical environmental, occupational health and safety audits are quite popular across the board, being fully implemented by 43% of the companies and being partially implemented by 39%. The

companies mentioned that they do audits monthly, quarterly, bi annually or annually. This is confirmed by the fact 85% of the companies said they collect environmental information periodically for internal environmental aspects management. Frequency of collection of this information is as shown below in Table 4.7.

Table 4.6: Percentage of companies that partially of fully implemented Environmental Practices

Environmental Practice	Partially implemented	Fully implemented
Environmental education program for employees	50%	13%
Assessment of environmental and health and safety risks/ aspects	48%	52%
Presence of senior manager for socio-environmental issues	31%	24%
Presence of employees working full time on environmental management and social projects	28%	24%
Defined and published environmental policy	28%	52%
Clearly defined long term socio-environmental objectives and planning	44%	4%
Environmental and occupational health and safety criteria to select suppliers	33%	11%
Periodical environmental and occupational health and safety audits	39%	43%
Emergency response program	33%	67%
Pollution treatment and control systems	65%	28%
Written operational procedures to control environmental and health and safety risks	44%	39%
Product project focused on cutting, reuse and recycling	41%	13%
Project of productive processes focused on reduced energy and natural resource consumption	37%	20%
Investments in carbon dioxide emission reduction technologies	13%	0%
Energetic efficiency programs	28%	11%
Solid waste recycling and reduction programs	63%	15%
Water consumption, recycling and reduction programs	17%	33%
Replacement of fossil fuels by renewable energies	56%	6%
Seminars about sustainability for executives	17%	4%
Periodical publication of sustainability reports	35%	4%
Sponsoring of environmental events	67%	7%
Insurance contract to cover potential environmental risks	17%	22%
Remediation of environmental damage	37%	11%
Protection and preservation of species and habitats	39%	4%

Table 4.7: Frequency of collection of environmental information

Frequency of Collection	Percentage of Firms
Never	15%
Annually	22%
Bi annually	13%
Quarterly	22%
Monthly	17%
Weekly	4%
On a continuous basis	7%

Source: Fieldwork Data, 2014

As can be seen, the frequency of collecting environmental information ranges from once a year (true for 22% of the companies) to collection on a continuous basis (true for only 7% of the companies). The unavailability of environmental information on the part of companies makes it difficult for regulatory authorities such as EMA to evaluate the effectiveness and efficiency of policy alternatives, to monitor consent compliance and the state of the environment and to control the effects of company operations (Rajah et al., 2012).

4.3.2 Company scores on Environmental Proactivity

After the companies indicated on the list of environmental practices (Table 4.8) whether they implement a practice fully, partially or not at all, a rating was then given for each response. The ratings were 0=not implemented, 1=partially implemented and 2=fully implemented. The weighted scores for each company were calculated and the higher scoring companies were believed to be more proactive, showing the environmental leadership quality, which in this study is viewed as the highest level of proactivity. Since the highest possible score was 2 and the lowest possible score was 0, companies whose score lay below 0,67 were considered to exhibit a reactive strategy (lowest approach), companies whose score was lying from 0,68 to 1.33 a prevention strategy (above reactive but below leadership) and the companies above that an environmental leadership attitude

(highest and most desirable approach). The distribution of proactivity strategies within the industry and the mean values of each category are shown in Table 4.8 (standard deviations are in brackets).

Table 4.8: Distribution of proactivity strategies

Company type	Reactive Approach	Prevention Approach	Environmental Leadership	Mean Score
Commercial Farms	35%	53%	11%	0.90 (0.37)
Processors	0%	92%	7.6%	1.15 (0.38)
Service Providers	41%	58%	0%	0.77 (0.24)
Stockfeed Companies	17%	58%	25%	1.00 (0.38)
Overall Mean			0.98 (0.34)	

Source: Fieldwork Data, 2014

Based on these results, service providers are lagging behind, with a mean score of 0.77. Poultry processing companies are leading, with a score of 1.15. This is because poultry processors also fall in the food industry; hence they have stricter regulations governing their actions.

4.3.3 Environmental Proactivity Continuum

In the study environmental proactivity was measured by the extent to which each company implements certain environmental practices. The more practices a company implements, the higher the level of proactivity shown by that company. As indicated in the section 2.2.3, this study placed proactivity strategies along a continuum with three levels. In order of hierarchy, the three levels, starting from the strategy at the lower end to the one at the higher end we have :

Reactive strategy \implies Prevention Strategy \implies Environmental leadership

4.3.3.1 Reactive Strategy

Based on the measurement used (as shown in section 4.3.2) the companies who scored less the 0.67 are showing a reactive strategy. This strategy is such that environmental management is not of

paramount importance to the company. The companies do not invest in environmental management per se, they simply do what they have to in order to respect prevailing regulations so that they are not penalized (Buysee and Verebeke, 2003). Firms that adopt this approach find environmental management of little or no relevance. They also wait for something bad to happen first, and then they rectify it. 18.5% of the companies in the poultry value chain are using this strategy

4.3.3.2 Prevention Strategy

Companies that fall into this category are the companies that scored between 0.68 and 1.33. Companies utilizing this strategy go beyond compliance by taking the compliance benchmark and paving a way forward for their operations so that they never exceed pollution or environmental degradation thresholds above the permitted levels (Henriques and Sadorsky, 1999). Hence they create routines that enable them to channel resources appropriately to prevent pollution and decrease their own ecological foot print. 70.3% of the companies in the poultry industry are using this proactivity strategy.

4.3.3.3 Environmental Leadership

Companies that fall into this category are the companies that scored 1.34 and above. These firms have incorporated environmental management into their business practices. They view environmental management as an indispensable asset they cannot do without and they are aimed at sustainable company operations. They also enjoy better relationships with their customers who are interested in products with a superior environmental performance. Only 11.1% of the companies in the poultry industry use this strategy. Only one of these companies has been certified to ISO14001:2001, the rest have internal environmental management systems. This shows that companies can still show a high level of proactivity in the absence of a certified environmental management system.

4.3.4 Environmental proactivity per business category

In order to ascertain the particular business category that exhibits the greatest level of environmental proactivity, the first null hypothesis of the study was tested, which states:

There is no difference in the level of environmental proactivity exhibited by the different industries found in the poultry value chain (i.e. the commercial farms, service providers, stock feed manufactures and processors).

To test the hypothesis, the mean scores indicating proactivity strategy on the part of the business categories types were tested using the Kruskal Wallis test. The test result was $H(3)=6.866$, $p=0.076$. At the 5% confidence interval and with 3 degrees of freedom, the critical Chi square value is 7.815. Since the calculated value was less than the critical value, the null hypothesis could not be rejected. Therefore, the evidence was not enough to reject the null hypothesis. Hence there was no significant difference in the distribution of proactivity across the groups. The output from SPSS is shown in Figure 4.13.

Figure 4.13: Kruskal Wallis results showing distribution of proactivity strategies across the 4 business categories

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of proactivity is the same across categories of type.	Independent-Samples Kruskal-Wallis Test	.076	Retain the null hypothesis.
Asymptotic significances are displayed. The significance level is .05.				

Total N	54
Test Statistic	6.866
Degrees of Freedom	3
Asymptotic Sig. (2-sided test)	.076

Source: Fieldwork Data, 2014

Even though the Kruskal Wallis test showed that there are no significant statistical differences in the level of proactivity shown in the categories of companies in the poultry value chain, conclusions can still be drawn from the descriptive statistics.

4.3.4.1 Processing companies

The processing companies had the highest average score on environmental proactivity, having 92% displaying the prevention strategy and 8% displaying the environmental leadership. According to Bradford (2000), the requirements concerning environmental performance of companies typically move from the bottom of the value chain going up. The results of the survey support this finding as they show that the processors, who are at the end of the chain are leading as an industry in environmental management along the whole value chain. Bradford (2000) also stated that market pulls issues will set a growing demand for improving the environmental performance. Since the processors are at the end of the value chain, market pressures are bound to impact firstly on them before they move upwards on the value chain.

In responding to the question on operational impacts on the environment, all other sectors had some of their companies perceiving that they have a low negative impact on the environment. In the case of processors, none of them perceive operation impacts on the environment to be low, they all perceive the impact to be medium or high. This may indicate that the industry feels the need to clean up, hence the high level of proactivity shown.

The poultry processing companies also fall under the food industry and as such they are affected by laws and regulations for the food industry. Poultry abattoirs are governed under Public Health (Abattoir, Animal and Bird Slaughter and Meat Hygiene) Regulations SI 50 1995 which are strict on hygiene to ensure that poultry processing is done in a hygienic environment. The bylaws are such that they touch on the correct disposal of affluent, the appropriate equipment to use in the abattoirs, the keeping of records for inspection, among other things. Hence when the abattoirs abide by these laws, they are in actual fact implementing some environmental management practices and thus they perform better at managing their environments. In the food sector other systems such as HACCP and Quality Assurance Systems are very popular. 75% of the poultry processors who participated in the survey confirmed the presence of some of these systems in their organizations. Components of management systems overlap, hence once a company sets up one system, it is then easier to implement another system.

4.3.4.2 Stock feed manufacturing companies.

In this survey, stock feed manufacturing companies scored second highest after the processors, with 58% of the respondents implementing the prevention strategy and 25% implementing environmental leadership. In this group is the one single company that is ISO14001:2001 certified in the whole poultry industry. Stock feed manufacturers produce products that have to be within a small range of certain nutritional limits, hence their production process must be thorough.

Therefore, several stock feed companies have set up Quality Assurance and Quality Management Systems to assist in their operations so that they can make their products up to specifications. The presence of these other systems, as shown in this study, enhances a company's ability to implement an environmental proactivity strategy of a higher level. This may explain the better performance of the stock feed companies in the issue of environmental proactivity.

4.3.4.3 Commercial Farms

35% of the commercial poultry farms use the reactive approach to their environmental management, 47% use the prevention approach whilst 18% are environmental leaders. The average score for commercial poultry farms is 0.82, which is a moderate score. The 18% that show environmental leadership are commercial farms that have strong ties with international poultry brands. A study done by Earnhart et al., (2013) showed that multinational companies that take up ISO14001 certification expect their suppliers and buyers to do the same. Even though none of the high scoring commercial farms has a certified system, they all do have internal environmental management systems and they have all employed Safety and Health and Environmental manager. This therefore shows that having strong business links or ties with a multinational companies can prompt a company to take up more proactive environmental management practices

On the part of the farmers that are still using the reactive method, it cannot be said they are oblivious of the effects of their farm operations on the environment. This is because the majority of the farmers confirmed that they deem their operations to have a moderate impact on the environment. The presence of SHE managers in the commercial farms also shows that they are aware there is a need to take care of the environment. A study done by Mills et al (2013) on farmer attitudes and evaluation of outcomes to on-farm environmental management indicated that there are some farmers who are resistant to the environmental message and they do not engage in any

positive environmental practices. These farmers are more concentrated on maximizing production from enterprises and are fearful of outside interference and loss of control of their management. Such may be the case with the poultry farmers who are lagging behind using the reactive strategy. Most commercial farms said they use borehole water and therefore they are not too worried about the amount of water they use as they do not have a water bill at the end of the month. This attitude may indicate that they engage in environmental strategies only when there is an obvious and immediate monetary benefit derived from the practice.

4.3.4.4 Service Providers

Service providers scored the lowest, with an average score of 0.77. As mentioned in section 4.1.5, the service providers who include veterinary service providers and laboratories, are small companies, comprising 5-50 people. The result of this study is in line with the result found by Del Brio and Junquera (2003), who found that smaller firms have a minor interest in environmental management. Haverkemp (2007) also found that smaller firms have fewer environmental management capabilities. This can emanate from the fact that these companies have a low environmental impact or they perceive they have a low environmental impact, and therefore they do not have the urgency to pay attention to the environment. Being small companies, they occupy smaller premises and hence they may not feel the need to formally organize environmental management. However, such a view is based on the thinking that environmental management is all about handling large amounts of waste.

4.3.5 Stakeholder influence on environmental proactivity

The first objective of the study also sought to establish the most influential stakeholder when it came to environmental proactivity. In order to do this, respondents had to confirm the one stakeholder they found most influential. Stakeholders that were looked at were the share holders, regulatory authorities, customers, employees, the community and lastly affiliation bodies. Interestingly, 24% of the company's stated shareholders as the most influential stakeholders whilst the remaining 76% cited regulatory authorities.

It is not clear if the regulatory stakeholders are actually more influential or that they are feared by the companies since they are able to penalize for non compliance. None of the companies cited

employees as being influential stakeholders. This could indicate a lack of environmental knowledge in the employees. When asked about the community's influence, 61% of the processing companies confirmed that member of the communities that surround them have at one time or the other voiced their concerns over the nasty odours that come from the abattoirs. However, these complaints from communities have not prompted any particular action, besides remediation of the immediate problem. 33% of stockfeed manufacturers confirmed that their customers are more concerned with quality of feed more than anything else, so they have not met any customers who have prompted any environmental action.

Included in the group that say shareholders are the most influential are the farms that have strong links with multinational companies. Interestingly the study done by Henriques and Sardosky (1999) revealed that proactive companies are influenced by regulatory stakeholders, the community and organizational stakeholders. In the work they did in 1996, Garrod and Chadwick concluded that the government is the most influential stakeholder followed by the customer. The differences in the results obtained in this study may be attributed to the industry type as well as to the fact that the research was done in a developing country, where as their researches were done in developed countries.

The influence of the regulatory authorities and the shareholders calls to mind the issue of stakeholder salience. Companies pay more attention to stakeholders who have more power to influence the organization deliverables, among other things (Mitchell et al., 1997). In Zimbabwe the regulatory authorities include the Environmental Management Authority and the local councils where the premises are based. Having the regulatory authorities being the most influential stakeholder has the disadvantage that regulatory authorities only call for compliance. Thereafter, if the company wants to go beyond compliance, it is of its own initiative. Having the regulatory authorities being the most influential may explain why the majority of the companies in the poultry value chain are showing a prevention strategy. They have just taken the benchmarks if the authorities and they have used these to adjust their operations just to surpass the legislative requirements and they have not bothered to go beyond that.

The fact that employees and the community at large are not viewed by any as the most influential stakeholders when it comes to environmental management may be an indication of the lack of knowledge on the part of these two groups. They may not be aware of their environmental rights. Only 13% of the companies said they fully educate their employees on environmental practices, whilst 50% said they partially do so. The content and level of this education is unknown. Therefore there may be a knowledge gap. According to EMA, in Zimbabwe environmental rights are legally recognized through the Environmental Act (CAP20:27) and the act clearly states that every person should have a right to:

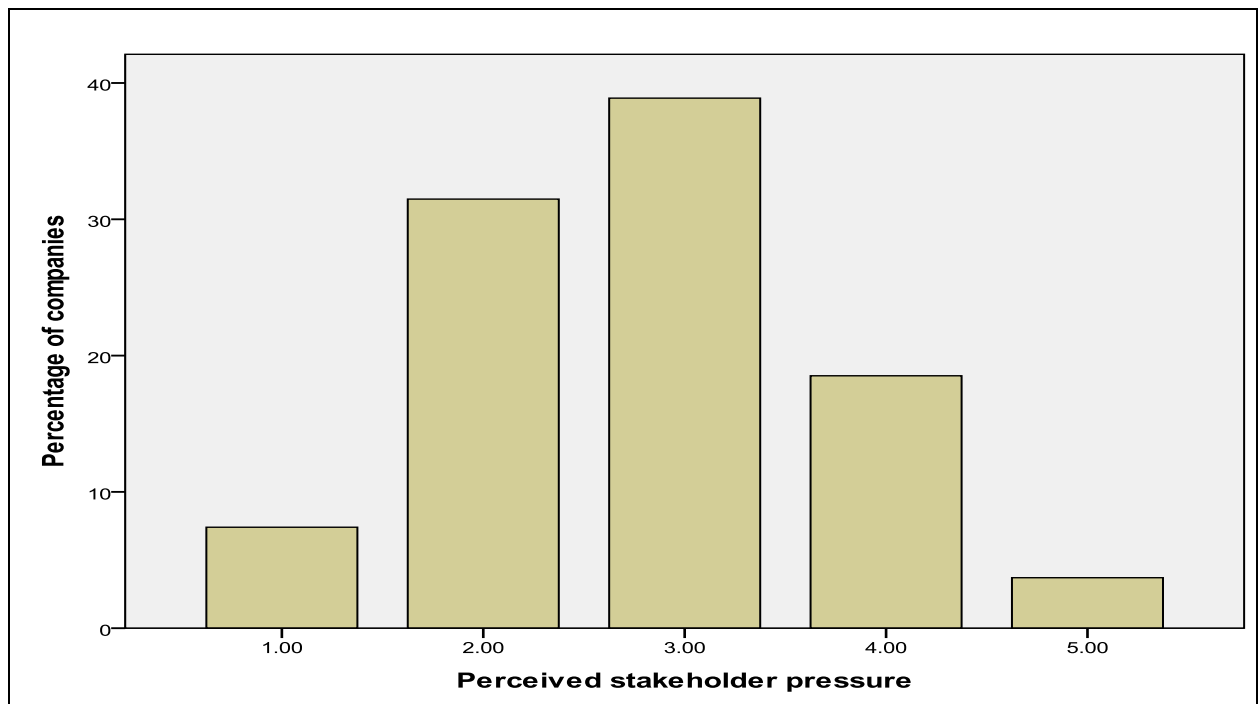
- A clean environment that is not harmful to health
- Access to environmental information
- Protect the environment for the benefit of present and future generations and participate in the implementation of the promulgation of reasonable legislative, policy and other measures that :
 - Prevent pollution and environmental degradation
 - Secure ecologically sustainable management and use of natural resources while promoting justifiable economic social development.

(Extracted from EMA Act, 2002)

There is therefore a need to raise awareness on environmental rights both to the employees and the communities at large.

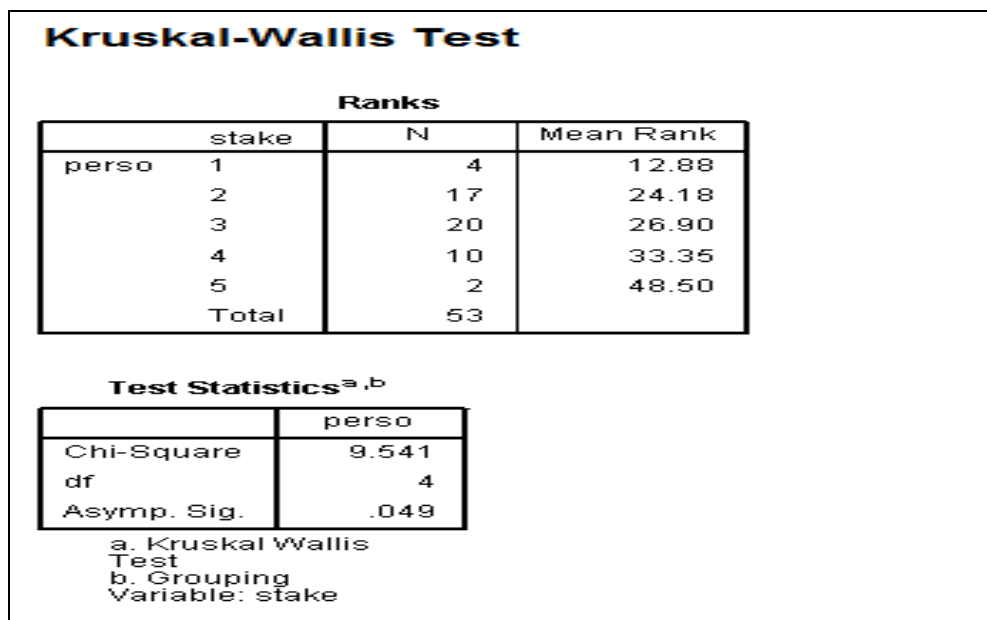
In addition to confirming the one stake holder found to be most influential, respondents were asked to indicate the perceived amount of pressure to conform to a particular environmental action they receive from all their stakeholders as a whole. This was done on a 5 point Likert scale running from 1 to 5. The results are shown in Figure 4. 14. The Kruskal Wallis test was carried out using the perceived pressure from stakeholders and the weighted proactivity score for each company from the environmental practices matrix. The test result showed that there is a statistically significant difference in the proactivity score between companies perceiving different stake holder pressure, $H(4)=9.541, p=0.049$. (Figure 4.15)

Figure 4.144: Perceived stakeholder pressure



Source: Fieldwork Data, 2014

Figure 4.15: Kruskal Wallis to show that there is a statistically significant difference in the proactivity score between companies perceiving different stake holder pressure



Source: Fieldwork Data, 2014

4.4 Environmental aspects receiving more focus

The third objective of the study was to determine the aspects of the environment that are valued most by the different subgroups in the poultry value chain. In line with this objective, the second null hypothesis of the study was tested and it states:

H₀: There is no relationship between the amount of focus placed on managing certain environmental aspects by a company and the level of proactivity that company shows.

Respondents were asked to indicate the extent of focus placed on managing certain named environmental aspects. A 5 point Likert Scale was used (1= Not at all to 5=very much.) to indicate the degree of focus they placed on the environmental aspects. Table 410 shows the mean scores of each business category for each environmental aspect and the mean for the whole industry.

Table 4.9: Amount of focus placed on Environmental Aspects

	Stockfeed companies	Service Providers	Processors	Commercial farms	Mean
Land contamination	3.50 (0.67)	1.92 (0.90)	3.62 (1.44)	2.76 (1.03)	2.92(1.29)
Water use	3.58 (1.08)	3.75 (0.75)	3.77 (1.36)	2.47 (1.23)	3.31(1.26)
Water contamination	3.33 (1.07)	3.75 (0.45)	3.70 (1.18)	3.65 (1.22)	3.61 (1.04)
Smell	2.25 (1.14)	2.00 (1.04)	3.46 (1.13)	3.47 (1.01)	2.87 (1.24)
Air Pollution	3.83 (0.83)	2.33 (0.98)	2.54 (0.97)	3.11 (1.22)	2.96 (1.15)
Use of hazardous substance	3.67 (1.07)	4.25 (0.45)	3.31 (1.38)	3.35 (1.06)	3.61 (1.13)
Waste Production	3.75 (1.05)	3.75 (0.75)	3.23 (0.83)	2.29 (1.10)	3.17 (1.13)
Environmental Communication	2.83 (1.19)	2.17(0.39)	3.15 (0.99)	2.59 (1.18)	2.69 (1.04)
Waste Disposal	4.00 (0.85)	4.58 (0.51)	4.08 (0.95)	3.17 (1.24)	3.89 (1.08)
Energy Consumption	3.67 (1.07)	3.25 (0.87)	3.00 (1.22)	3.00 (1.17)	3.20 (1.11)
Noise	3.08 (0.90)	2.75 (0.75)	3.08 (1.26)	2.64 (1.00)	2.87 (0.99)
Office waste	2.42 (1.24)	1.92 (0.67)	1.77 (1.01)	1.82 (1.01)	1.96 (1.00)

Source: Fieldwork Data, 2014

A regression was done to determine if the focus placed on environmental aspects significantly predicts environmental proactivity. The individual weighted scores of each company was considered as the dependent values and was treated as interval ratio. To start off the data was examined to see if it could be used for multiple regression analysis. First of all scatter plots were done to see if each aspect had a linear relationship with the weighted proactivity scores. Then Normal P-P plots were computed to check that the residual errors for each variable are approximately distributed. Multiple collinearity was checked for by the use of variance inflation factors (VIF). The commonly applied maximum threshold value for VIF is 10 (Hair *et al.*, 1998). Variables with a VIF above 10 were removed, as this is an indication of multi collinearity with another variable. The variable ‘noise’ had a VIF above 10 and it was removed. Using the enter method on SPSS, the amount of focus placed on the management of individual environmental aspects was found to statistically significantly predict environmental proactivity ($F(11, 42)=66.411$, $p<0.05$, R^2 adjusted =0.931). The particular aspects whose management statistically significantly added to the prediction of the dependant variable were air pollution ($p<0.05$), use of hazardous waste ($p=0.01$), waste production ($p=0.049$) and office waste ($p=0.048$). Therefore we can reject the hypotheses that there is no relationship between the amount of focus placed on managing environmental aspects and the level of proactivity shown by a company. The summary statistics and the coefficient table are shown in Figure 4.16.

Figure 4.16: Summary of regression analysis for environmental aspects

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.972 ^a	.946	.931	.08913		

a. Predictors: (Constant), office waste, smell, waste disposal, land contamination, water contamination, air pollution, energy consumption, water, environmental communication, use of hazardous substance, waste production

ANOVA^b						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.803	11	.528	66.410	.000 ^a
	Residual	.334	42	.008		
	Total	6.136	53			

a. Predictors: (Constant), office waste, smell, waste disposal, land contamination, water contamination, air pollution, energy consumption, water, environmental communication, use of hazardous substance, waste production
 b. Dependent Variable: score

Coefficients^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.155	.056		-2.777	.008		
	land contamination	-.029	.020	-.111	-1.468	.150	.228	4.395
	water	.023	.027	.086	.866	.391	.131	7.609
	water contamination	-.018	.025	-.054	-.697	.490	.215	4.651
	smell	.001	.019	.004	.052	.959	.275	3.642
	air pollution	.090	.022	.304	4.088	.000	.233	4.283
	use of hazardous substance	.113	.031	.360	3.633	.001	.132	7.585
	waste production	.067	.033	.221	2.024	.049	.109	9.174
	environmental communication	.042	.032	.128	1.283	.207	.131	7.643
	wastedisposal	-.035	.029	-.110	-1.203	.236	.155	6.469
	energy consumption	.030	.030	.099	.996	.325	.132	7.579
	office waste	.049	.024	.147	2.033	.048	.249	4.015

a. Dependent Variable: score

Source: Fieldwork Data, 2014

In addition to this the medians of the environmental aspects were statistically tested for differences across the business categories using the Kruskal Wallis test. There were no significant differences in the distribution of scores for office waste, noise, energy consumption, environmental communication, use of hazardous substances and water contamination across the different business categories. However, there were significant differences in scores for all other aspects across the different business types. The analysis summary is shown in Figure 4.17.

Figure 4.157: Kruskal Wallis analysis for environmental aspects

Test Statistics ^{a, b}			
	Chi-Square	df	Asymp. Sig.
Land_contamination	14.530	3	.002
Water_use	10.363	3	.016
Water_contamination	1.171	3	.760
Smell	16.156	3	.001
Air_Pollution	13.179	3	.004
Use_of_hazardous_substance	6.185	3	.103
Waste_Production	15.086	3	.002
Environmental_Communication	6.849	3	.077
Waste_Disposal	12.038	3	.007
Energy_Consumption	2.492	3	.477
Noise	2.814	3	.421
Office_waste	3.307	3	.347

a. Kruskal Wallis Test
b. Grouping Variable: busnestyp

Source : Fieldwork Data, 2014

The results on the aspects show that commercial farms seem to place less importance on the conservation of water, indicated by the low score on water use. This is because most of these farms have boreholes, they do not pay for council water hence they do not seem to be concerned about the amount of water they use. However, three of the commercial farms highlighted that they focus on water conservation very much (denoted by marking 5 on the likert scale) and they said they do this because they have environmental policies that prompt them to conserve water, regardless of whether they pay for it or not. These farms scored high on environmental proactivity too.

The stock feed companies scored high on the attention they give to waste production and waste disposal. All stock feed companies recycle the feed they make that cannot be put on the market due to being below standard. This is because they produce their feed in large batches that can be as much as 50tonnes in one run, hence for them to dump that much feed each time they realise it is below standard would be too expensive for them.

Service Providers use hazardous substances in their laboratories, hence they scored higher for that aspect. They then have to dispose of those chemicals appropriately and thus they give more attention to waste disposal.

Environmental communication in any direction seems to be given less attention across the board, except in the poultry processing companies. Even in the presence of the high scoring processing companies, the mode score for environmental communication is 2, which indicates that environmental communication is given less than moderate attention. Under Public Health (Abattoir, Animal and Bird Slaughter and Meat Hygiene) Regulations SI 50 1995, it is mandatory for the Meat Inspectors from the Veterinary Public Health Branch to inspect all aspects of slaughter houses on a regular basis, including waste management. In the case of malpractices related to hygiene or inadequate records, the inspectors must notify the owner who should then rectify his malpractices or else be fined. Therefore, in addition to other records, poultry processors record their environmental performance and share it with the regulating authorities. It is worth noting that three commercial farms also scored highly on this aspect. This is because these farms receive grandparent broiler and layer stock from overseas, and their suppliers demand environmental reports periodically. They also have personnel coming from these suppliers who perform random checks on their operations and their reports, hence they need to keep their environmental records in order. Of all the respondents, only 9% (5 companies) said they communicate their environmental performance directly to their suppliers and buyers who are not share holders once per annum. The rest said they never do so, unless the supplier or buyers are shareholders or demand such reports. None communication of environmental performance means that there are inadequate feedback mechanisms in place to ensure the continuous improvement of environmental laws.

Handling of office waste such as paper and ink cartridges scored low across the board. The majority of the respondents said they had not considered coming up with paperless offices or reducing the amount of paper that circulates in offices. Much as all the companies use computers and

communicate on email, they still believe in printing hardcopies and filing them. Bureaucracy in the companies is such that a series of signatures is required for almost all transactions and thus the need to keep the hardcopy system going. 25% of the respondents said they did not think it very feasible to come up with paperless offices. 3 companies from the stock feed companies have made efforts to reduce their carbon print by discouraging the use of papers in their offices. The low score on office waste management signifies that the perception of some in the industry is that environmental management is only confined to appropriate waste disposal and a reduction in air pollution. As for reduction in energy consumption or reduction in water use, they seem not to associate this with environmental management.

4.5 Enabling Resources within companies

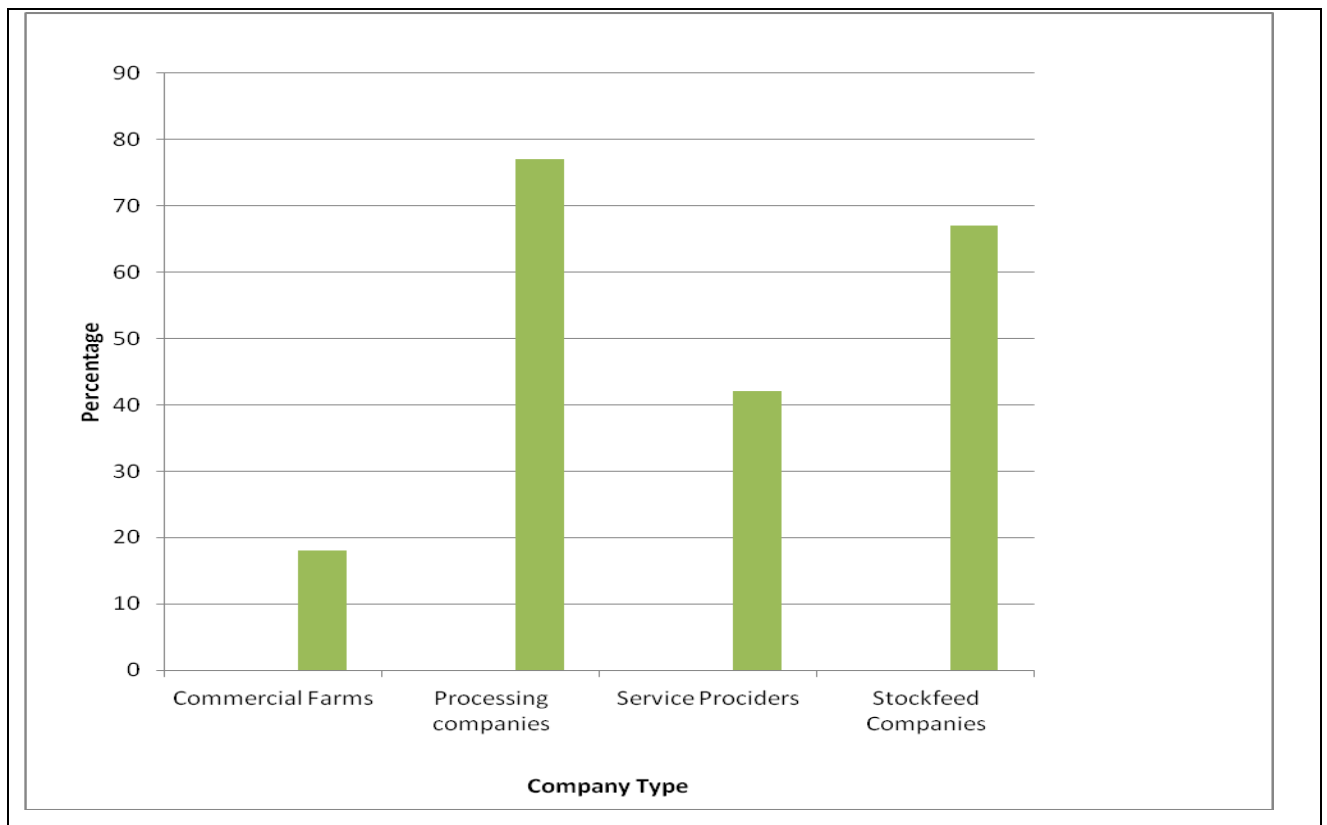
The sixth objective of the study was to investigate the enabling capabilities within a company that lead to improved environmental proactivity on the part of the company. The enabling capabilities that were looked at were the presence of other systems and the availability of a sufficient environmental budget. The third hypothesis to be tested in this study is tested in this section and it states that:

The presence of other systems within a company does not affect the level of proactivity shown by the company.

4.5.1 Presence of other systems

Respondents were asked to indicate the presence of other operational systems within their companies. A total of 48% of the companies have in place other operational systems. Their distribution is shown in figure 4.18. Therefore, a Mann Whitney test was performed to determine if the presence of other systems has an effect on environmental proactivity. The results showed that companies that do have other systems scored significantly higher for proactivity ($U=240$, $p=0.031$). As shown in Figure 4.19, the group that said “yes” to having other systems in place (denoted in the SPSS table by 2.00) had a higher mean rank, meaning that they had the higher environmental proactivity scores. Therefore, the hypothesis that the presence of other systems within a company does not affect the level of proactivity shown by the company can be rejected.

Figure 4.16: Percentage of Companies with other operational systems in place



Source: Fieldwork Data, 2014

Figure 4.17: Mann Whitney test for difference in the proactivity levels shown by companies with or without other operational systems

Mann-Whitney Test				
Ranks				
	yesno	N	Mean Rank	Sum of Ranks
score	1.00	28	23.07	646.00
	2.00	26	32.27	839.00
	Total	54		

Test Statistics^a	
	score
Mann-Whitney U	240.000
Wilcoxon W	646.000
Z	-2.153
Asymp. Sig. (2-tailed)	.031

a. Grouping Variable: yesno

Source: Fieldwork Data, 2014

The one system that is common, being run by 40% of the companies is the Quality Assurance System. This system is especially popular in the processing companies and the stock feed manufacturing companies. Only one company has a certified ISO 14001:2004 environmental management system. 28% of the firms have internal environmental management systems, and two firms from this group are currently working towards certification. Few commercial farms have operational systems in place. Other systems that are implemented by the companies are the Food Safety Management Systems, The Hazard Analysis Critical Control Points and the Occupation Health and Safety Assessment Series. All companies that have an operational system in place confirmed they integrate environmental practices into that system.

4.5.2 Environmental budget

In order to assess the availability of financial resources, respondents were asked to indicate whether they have a sufficient environmental budget in their companies. The responses obtained from the four categories are shown in Table 4.11.

Table 4.10: Company Responses on availability of a Sufficient Budget per category

	Absence of Environmental Budget	Presence of Environmental Budget
Commercial Farms	53%	47%
Processors	15%	85%
Stockfeed Companies	16%	84%
Service Providers	59%	41%

Source: Fieldwork Data, 2014

All respondents (56% of total) who initially said environmental management contributes highly or very highly to their corporate goals also confirmed that they have a sufficient environmental

budget. 85% of the processors responded that they do agree to having a sufficient environmental. This may be compounded by the fact that they have more regulatory laws to abide by. It may also be that they feel that since they are at the end of the value chain, they are can be likened to the face of the poultry value chain to the public, and as such they have to try and ensure all their operational systems are in place.

A Mann Whitney test was computed in order to test for any effect of the presence of an environmental budget on environmental proactivity practices of a company. Individual weighted scores of the companies were used. There is a statistical difference in the proactivity practices of companies that answered differently for the presence of an environmental budget (U=176, p=0.03). the analysis results are shown in Figure 4.20. Hence it can be concluded that presence of a sufficient budget does significantly affect environmental proactivity of a company.

Figure 4.18: Mann Whitney Test to test for difference in the proactivity levels shown by companies with or without sufficient environmental budgets

Mann-Whitney Test				
Ranks				
	yes no suff budget	N	Mean Rank	Sum of Ranks
score	.00	20	19.30	386.00
	1.00	34	32.32	1099.00
	Total	54		

Test Statistics^a	
	score
Mann-Whitney U	176.000
Wilcoxon W	386.000
Z	-2.946
Asymp. Sig. (2-tailed)	.003

a. Grouping Variable: yes no suff budget

Source: Fieldwork Data, 2014

4.6 Position in the Value Chain

Respondents were asked if they felt their position in the value chain had any effect on their environmental strategy. To measure this, they were asked to indicate on a Likert scale if their value chain position had a bearing on the choice of their strategy, 1 indicating no bearing at all and 5 indicating great bearing. The results that were obtained are shown in table 4.11.

Table 4.11: Perceived influence of value chain position

	No influence	Low Influence	Moderate influence	High Influence	Very High influence	Weighted Mean Score
Commercial farm	.	24%	29%	35%	12%	3.35 (0.99)
Stockfeed Company	.	17%	33%	42%	8%	3.42 (0.90)
Processor	.	15%	15%	54%	15%	3.69 (0.95)
Service Provider	.	25%	42%	17%	17%	3.25 (1.06)

Source: Fieldwork Data, 2014

69% of processing companies believe their position influences their proactivity practices highly or very highly. The companies may feel that way because they are right at the end of the value chain, offloading the goods into the market directly for consumption. It is unlike the other companies in the chain; they may sell their products directly to the public but the product they sell will not be consumed, it remains within the value until it comes out as a consumable poultry product, through the processors. Hence the processors may feel a greater responsibility to have good systems in place as they are at the end of the value chain.

Much as the results indicate that companies themselves felt that their position in the value chain does have a bearing on the strategy they implement, there is no value chain approach to environmental management in the poultry industry. This is shown by the fact that there is no horizontal environmental communication within the value chain. Companies alluded that they do

not use environmental information when they are doing their rating for potential suppliers. A value chain approach to environmental management would benefit the industry as it will lead to the holistic management of environmental impacts. This will result in network cooperation and the improvement of the entire life cycle of poultry production. Life cycle thinking requires that the main player in the industry be aware of the environmental impacts of their products along the chain. A value chain approach will see the whole chain being interested in controlling environmental impacts so that they can safeguard the proper functioning of the chain because if one company in the chain is closed due to environmental scandal, business will be disturbed.

Chapter 5 .0 Summary of Findings, Conclusions and Recommendations

This chapter discusses summarises the findings, draws conclusions and gives some recommendations for the industry.

5.1 Summary of Findings

The study found that the members of the poultry industry perceive their operations to have a medium impact on the environment. The majority of the companies in the industry give moderate priority to environmental issues, with less than 20% giving low priority and 30% of the companies giving environment issues high to very high priority. Commercial farms give moderate priority to environmental concerns, stock feed companies and processors give moderate to high priority to environmental concerns and service providers give the least priority that is just below moderate. However when financial resources are few, environmental concerns are prioritised less. Environmental management moderately contributes to corporate goals of the companies in the industry. There is no value chain approach to environmental management in the poultry industry.

The study found that there are three types of environmental proactivity strategies in use in the poultry value chain. The reactive strategy, which is at the lower end of the proactivity continuum, is being used by 18% of the firms in the poultry industry. 70.3% are using the prevention strategy, which is in the middle of the continuum, and 11% are using the environmental leadership strategy which is at the higher end of the continuum. Statistically there is no significant difference in the level of proactivity exhibited across all the business categories in the poultry value chain (poultry farms, poultry processors, stock feed companies and service providers). However, looking at the descriptive statistics, processors are showing a higher level of environmental proactivity.

The most influential stakeholders in the poultry industry are regulatory authorities (confirmed by 76% of the companies interviewed) and shareholders. However, the companies that seem to receive more pressure from shareholders are those companies with strong relations with multinational companies.

The aspects of the environmental that receive most focus from the companies in the poultry industry are water contamination, use of hazardous substances, waste disposal, waste production and energy consumption.

The presence of enabling resources in the company enhances the environmental proactivity strategy that will be used by the company. Companies that have in place other operational systems such as Quality Assurance and Food Safety Management Systems show a higher level of environmental proactivity as compared to companies that do not have these systems. Companies that have a sufficient environmental budget also display a higher level of environmental proactivity as compared to companies without the budget.

5.2 Conclusions

This study was analysing the environmental proactivity strategies that are in use in the Zimbabwe poultry value chain. It looked at the drivers for these strategies based on the stakeholder theory and the resource based view and sought to determine how these lines of thought interrelate in order to drive towards a particular environmental proactivity strategy. An additional dimension of environmental aspects was brought into the equation, showing the environmental aspects that receive much attention from the companies in the poultry value chain.

The hypothesis that there is no difference in the level of environmental proactivity exhibited by the different categories of industries found in the poultry value chain was tested. The average weighted scores used as an indication of the level of environmental proactivity for the commercial farm, processors, service providers and stock feed companies were 0.9, 1.15, 0.77 and 1.00 respectively. Based on the scale used in this study to measure proactivity, on average all firms in the poultry industry lie in the pollution prevention category. A Kruskal Wallis test showed that there was no statistical significant difference in the distribution of proactivity across the 4 categories. Therefore, not enough evidence was found to reject this hypothesis. Based on this, a conclusion can be drawn that the level of environmental proactivity demonstrated by companies in different categories of the poultry value chain does not differ.

The second hypothesis of the study stated that there is no relationship between the amount of focus placed on managing certain environmental aspects by a company and the level of proactivity that company shows. The environmental aspects that seem to be focused on the most by the poultry industry companies are water contamination, use of hazardous substances, waste disposal, waste production and energy consumption. Multiple regression analysis was done to see if the focused on environmental aspects predicted proactivity. Environmental aspects were found to statistically significantly predict environmental proactivity and the particular aspects that statistically significantly added to the prediction of the proactivity were air pollution, use of hazardous waste, waste production and office waste. Therefore, this hypothesis was rejected. It can be concluded that the focus placed on managing different aspects of the environment does contribute to the prediction of the environmental proactivity level of the company.

The hypothesis that the presence of other systems within a company does not affect the level of proactivity shown by the company was tested. The Mann Whitney U test was used to compare the environmental proactivity score for companies that have other operational systems in place versus those that do not have these systems in place. The results showed that companies that have implemented other systems actually have higher levels of environmental proactivity ($U=240$, $p=0.031$, with a mean rank score of 32.27 for companies implementing other systems and 23.07 for companies not implementing other systems). Therefore the hypothesis was rejected. It can be concluded that the presence of other operational systems in companies aids these companies in improving their environmental performance.

5.3 Recommendations

5.3.1 Recommendations for the environmental organisations and government authorities

Industries must be educated about the true essence of environmental management. With extra knowledge on environmental management the attitudes of decision makers will change, and they will move away from the notion that environmental management is about waste disposal and pollution prevention. They will be able to see the bigger picture of increased sustainability which will ensure maximization of profit for extended times versus the myopic view of immediate monetary gain. Affiliation bodies can come in handy in this avenue. Each body is fully aware of the operations of its affiliates and therefore they can come up with industry specific environmental awareness seminars targeted at company executives. These affiliation bodies can also look into the possibility of having an industry specific environmental management system that harmonises the reduction of operations impacts on the environment along the value chain.

There is a need to educate members of the public on their environmental rights, so that they do not let companies impinge on these rights. Customers can then attain the status of salient stakeholders, who can voice their concerns on company operations that may be detrimental to the environment and they are heard. Employees must also be adequately educated on environmental concerns. This will lead to employees seeking to reduce their ecological footprint at individual work station. That is a step towards sustainable production.

5.3.2 Recommendations for shareholders and stakeholders

There is room for improvement in the levels of environmental proactivity shown by the poultry industry companies. Through the most influential stake holder, the regulatory authorities and the shareholders, these companies can be encouraged to aim higher in their environmental efforts. The companies that are showing environmental leadership can be encouraged to aim higher than that, to aim for total quality environmental management. The companies though need to be reminded that this is not being done for monetary gain or merely for competitive advantage but it is being done for sustainability of production processes.

5.3.3 Recommendations for further study

There is need to carry out a similar research but targeted at small scale poultry companies. This is because small scale companies keep increasing and they contribute significantly to the poultry industry. Their level of knowledge concerning the environmental impacts of their operations should be assessed in order to understand if there is a need to educate them further on environmental management. Environmental proactivity strategies of other industries, besides the poultry value chain must be examined as well.

The actual environmental impacts of poultry production in the country should be classified and quantified. This will ensure that environmental management efforts are channelled in the right direction and it will lead to the formulation of policies that truly address eminent concerns.

5.3.4 Recommendation for policy makers

A clause should be added in the existing statutory instruments governing environmental management which requires environmental reporting on the part of the companies on a regular basis. This will increase accountability and improve in compliance. It will also give the policy makers feedback on the effectiveness of policies in place so that if adjustments need to be made they can be made.

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APPENDICES

Appendix A. Questionnaire

Please note that this questionnaire is intended for academic purpose only. Please answer the questions as honestly as possible. The company's name will not be displayed in the final report. Thank you.

1. Please state the location of your establishment.

2. What is the distance of the enterprise from the nearest commercial business district?

3. Type of firm.

Commercial Farm

Stockfeed manufacturer

Veterinary Service Provider

Processor (abattoir or egg processor)

4. How many employees are in your firm?

50-100

101-150

151-200

Over 200

5. How old is your enterprise?

0-5 years

5-10 years

10-15 years

15-20 years

20-25 years

25 years and above

6. What is your main position in the firm?

Environmental Coordinator

CEO

Quality Manager

Health & safety manager

Production Manager

Director

Other :

Water use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water contamination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smell	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Air pollution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of hazardous substances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Waste production	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental communication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Waste disposal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Energy consumption	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Noise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. To what extent does the most focused on environmental aspect as indicated above influence the choice of environmental proactivity strategy?

- | | |
|--|---|
| <input type="checkbox"/> No influence at all | <input type="checkbox"/> Little influence |
| <input type="checkbox"/> Moderate influence | <input type="checkbox"/> High influence |
| <input type="checkbox"/> Very high influence | |

15. How often do you collect environmental information concerning your operations?

- | | |
|--|--------------------------------------|
| <input type="checkbox"/> On a continuous basis | <input type="checkbox"/> Weekly |
| <input type="checkbox"/> Monthly | <input type="checkbox"/> Bi annually |
| <input type="checkbox"/> Quarterly | <input type="checkbox"/> Annually |
| <input type="checkbox"/> Never | |

What is the main purpose for collecting this information?

- Internal environmental management
- To check environmental emissions
- Product (re)design
- To evaluate environmental measures
- To exchange information with buyers/ suppliers
- Chain-oriented environmental management

16. Are any of your products ISO 14021 or ISO 14024 certified?

- Yes (How many?) No

17. Do you have a functional environmental management system?

Yes, an internal system not certified by any third party

Yes, and we are certified ..(please state the name of the certifying board)

No

It is work under progress, expected to be fully implemented by

(month and year)

18. Is there a chain actor that provides help with environmental issues?

Yes (Who?)

No

19. Please indicate the frequency with which you contact buyers, suppliers and other chain players to arrange formal agreements with respect to environmental issues

Weekly

Monthly

Bi annually

Quarterly

Annually

Never

20. To what extent do you agree with the following statements

Completely disagree – 1 2 3 4 5 – Completely agree

We work actively together with suppliers on environmental issues

We work actively together with buyers on environmental issues

We have a sufficient environmental budget

Environmental issues are integrated in quality management systems

Environmental issues are shared among employees

21. To what extent do you perceive your position in the poultry value chain to influence the environmental proactivity strategy you use?

No influence at all

Little influence

Moderate influence

High influence

Very high influence

We have no strategy what so ever

22. Please indicate the influence you perceive you receive from all your stakeholders concerning environmental management

No influence at all

Little influence

Moderate influence

High influence

Very high influence

23. Which one of these stakeholders do you find most influential in environmental matters?

Regulatory

Community

Customers

Shareholders

Employees

24. Please indicate the implementation of the following management systems within your organization.

Food Quality Management System

Quality Assurance system

HACCP

Other:

25. What percentage of the company's annual income is invested in the implementation, improvement and maintenance of your chosen environmental strategy?

0-5%

6-10 %

11-15%

16-20 %

21-25%

25 % and above

26. To what extent have the economic constraints of the country affected your business?

Low impact

Medium impact

High impact

Therefore what priority do environmental concerns receive when financial resources are constrained?

Very low priority

Low priority

Moderate priority

High priority

Very high priority

Priority is not affected by financial constraints

27. In the past 5 years, have you been penalized for failure to comply with government regulations on environmental management?

Yes, once only

Yes, 2-5 times

Yes, more than 5 times

No

28. In your view, would an industry specific environmental management system designed for the poultry industry aid in improving your operations?

Yes

No

Not sure

Appendix B. Environmental Practices used to assess proactivity level

Please indicate the extent to which each of the following activities is implemented in your organization.

	Not implemented	Partially implemented	Fully Implemented
Environmental education program for employees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Assessment of environmental and health and safety risks/ aspects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Presence of senior manager for socio-environmental Issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Presence of employees working full time on environmental management and social projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Defined and published environmental policy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clearly defined long term socio-environmental objectives and planning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental and occupational health and safety criteria to select suppliers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Periodical environmental and occupational health and safety audits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Emergency response program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pollution treatment and control systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Written operational procedures to control environmental and health and safety risks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Product project focused on cutting, reuse and recycling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Product life cycle analysis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Project of productive processes focused on reduced energy and natural resource consumption	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Replacement of hazardous or polluting materials in Products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Investments in carbon dioxide emission reduction Technologies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Energy efficiency programs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Solid waste recycling and reduction programs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water consumption, recycling and reduction programs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Replacement of fossil fuels by renewable energies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clear information to the public about the environmental and safety and/ or health risks of the product	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seminars about sustainability for executives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Periodical publication of sustainability reports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sponsoring of environmental events	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insurance contract to cover potential environmental risks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Remediation of environmental damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Protection preservation of species and habitats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

THANK YOU