

**TOWARDS QUALIFICATIONS FOR ENVIRONMENTAL  
PRACTITIONERS: A STUDY OF ROLES AND COMPETENCIES OF  
ENTRY LEVEL ENVIRONMENTAL MANAGERS**

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# Rhodes University

## Department of Education

### Declaration

I certify that the Half-thesis entitled: *Towards Qualifications for Environmental Practitioners: A Study of Roles and Competencies of Entry Level Environmental Managers*, and submitted for the degree of Masters of Education (Environmental Education), is the result of my own work, except where otherwise acknowledged, and that this thesis (or any part thereof) has not been submitted for a higher degree to any other university or institution.

Signed: .....

Date: .....

## ABSTRACT

The decision by the previous apartheid governments to deprive the black population of quality education and training has dealt both the people (student and workers) and the economy of this country a severe blow. That blow is demonstrated by the current lack of skills among the majority of people of this country, particularly the black workers who constitute the majority of the workforce.

The post-apartheid government is making a strong attempt at redressing the past injustices in all its forms, of particular interest in this research project, the endeavours in the education and training sphere, specifically developments associated with the National Qualifications Framework. The passing into law of the South African Qualifications Act of 1995 and the formulation of the National Qualification Framework represent significant milestones towards redressing current education and training imbalances.

In order to actualise the promises of these policies and laws, new qualifications will have to be developed. This research project explores training needs of environmental practitioners in three different contexts employing a combination of research methods, i.e. Case Study and a Survey. The research project sought to identify the roles and training needs of environmental management practitioners in fulfilling their job demands as well as for career advancement. The research also sought to identify through a survey training courses currently on offer in South Africa in the environmental management field.

The cases revealed a range of roles and competencies required by 'entry-level' environmental managers. Of note was the observation that these roles were broader than what the traditional perspectives on environmental management might suggest, and competencies required included several social skills, in addition to various technical skills.

The survey revealed a strong leaning towards technical competence among the majority of available training courses in environmental management; and that technical emphasis remained the case even among those courses that appeared to include at least one 'social' dimension. It thus seems that this emphasis on technical competence is not consistent with the job demands of the three studied environmental management practitioners.

The research identified a need for an encompassing (broad) course or qualification at 'entry level' that would take into account the realities on the ground as they confront these practitioners on a daily basis. Such training will provide practitioners with the necessary competencies to function in this seemingly evolving field of environmental management.

Suggestions to inform the development of an entry-level qualification or training programme are made as part of the recommendations flowing from the research findings. The suggested qualification 'framework' is based on generic areas identified among the research participants. More work is needed though in order to translate the suggestion into an accredited qualification.

## **DEDICATION**

This work is dedicated to the memory of two people who before the end of their mortal life made remarkable contribution to my life. Their wisdom regarding environmental issues and social justice (legacy) continue to be the backdrop of my philosophical inquiry and understanding of life is phenomena.

Late Zide Madlingozi (grandfather)

And

Late Khululekile Maxwell Madlingozi (uncle)

**Both your legacies live on!**

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To my family, for their moral support and words of encouragement when days of darkness befell me on this journey. Special thanks to my grandmother Nokhaya Madlingozi, for her tactical support and protection, which kept stress at bay and made it possible for me to complete this work.

I would like to thank the people and organisations that took part in this study. I hope the insights and discussions that are raised in this study will in some small way assist in broadening the understanding of the work they do as environmental managers, an understanding which would contribute to tailoring training.

In conclusion, I would like to thank Dr Heila Lotz and Deborah Seddon for proofreading this work. I also want to acknowledge the editorial assistance of Mike Powell, and to thank him for willingly transgressing the boundaries of 'usual' friendship.

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# **CHAPTER ONE: INTRODUCTION**

## **CONTEXT OF THE STUDY**

### **1. ORIENTATION TO THE CHAPTER**

This chapter begins with a brief explanation of my background including my personal interest in the research question. Following the brief personal background will be key issues that need to be explored in order to shed light on the research question and why it is worth both the financial and human resources that have been committed to it. The issues to be dealt with are: 1) training and education in apartheid South Africa; 2) education transformation efforts which followed the demise of apartheid; and 3) environmental management and its related learning issues.

The chapter is concluded with a list of the research goals that were drawn up to focus the research process. During the initial write-up of the proposal for this study, a great deal of synthesis took place and therefore what is left as goals is a product of rigorous scrutiny and delineation in order to make this study manageable within available time for completion.

### **2. THERE IS GOLD WHERE THE RAINBOW TOUCHES THE GROUND**

The above heading might seem confusing, even irrelevant to the research questions. The title might even look more out of place when thinking that it is supposed to give background about the author of this work. I have chosen it because my grandmother used to utter these words as a way of motivating us to remain in school, with great hopes that we will get 'educated' (end of rainbow) and therefore obtain our 'key to success' (pot of gold). Incidentally this saying was a motto for our village high school's coat of arms. The coat of arms read, "Education is the key to success".

I grew up in one of the villages falling under the Peddie District in the Eastern Cape, and throughout my boyhood I spent years in the veld herding livestock. During that time I developed an affinity for animals (both wild and domestic) and the natural environment. At the time, I learnt much about rearing animals and the seasons for the ripening of wild fruits.

I grew up to respect the 'environment', as my grandfather believed that the environment is the 'sanctuary' of our livelihood. I must admit that I always took this lesson for granted, for instance, I assumed that it was a given for trees to grow back when cut and that animals left to breed can and will multiply. That 'naïve' belief was wiped out after the drought of 1983, which had devastating effects on the village livestock and ground cover.

Having grown up in challenging conditions in the height of apartheid, I went through high school, often without the teachers needed to teach us – on average we only had three subject teachers a year out for between seven and eight subjects. As a result most of the village children never reached matric as they could not cope, in what can only be described as difficult circumstances, with the result that some remained trapped in poverty and the net of underdevelopment.

What I am driving at here is, in the process of reading this research report, you will from time to time come across the person whose life has been characterised by the struggle to find the proverbial 'key to success'. I believe that on a broader scale, the key to success for myself, my great grandchildren and the nation at large lies with proper management of resources currently at our disposal, be they human or physical. In order to achieve such success, South Africa will need to provide good quality education and training for all its learners be they at formal schools or factory floors.

When my grandfather died he left me with rich indigenous knowledge on tilling the land and planting seasons. Having gone to school and becoming 'educated', I was shown other means of planting and growing 'food'. This research project therefore represents an exploration in a different kind of 'planting' - planting with a paper and pen. It tells the story of other people's struggle, efforts, aspirations and rights to gaining access to quality education and training. Their educational stories, like mine, are intimately linked to the environment. I hope that by writing this story, I am 'planting' some of the seeds that will enable their stories to grow.

### **3. EDUCATION AND TRAINING IN COLONIAL AND APARTHEID SOUTH AFRICA**

In my opening story above, I alluded to the significance of education and the environment. I also opened a theme that is central to this study, notably the history of educational provision in South Africa. South Africa has undergone a series of fundamental changes since 1994.

Of relevance to this research project, are the political changes that opened doors for other kinds of reform, including the transformation of education and training. A key feature of our past lies with discriminatory practices based on race. On the basis of race for instance, decision would be made on as to what type and how much training is a person entitled to. Blacks, particularly Africans were treated the worst among all racial groups found in South Africa.

This unfair treatment of black people was sanctioned at the high levels of government, and a range of arguments, credible or not, were used to justify its upkeep. In executing apartheid, the previous governments sanctioned and financed different education boards together with numerous laws governing use of other amenities.

At the time of governmental change in 1994, there were no less than 17 different education departments, primarily differentiated according to race. Separatist Boards and Departments governing education and training were established even in homelands and other self-governing states. The same discriminatory and separatist system applied to vocational training colleges. Dr. Verwoerd's justification of separate development and his view of Africans are best observed in his statement when he said:

*Until now, he [the African] has been subjected to a school system which drew him away from his own community and misled him by showing him the green pastures of European society in which he was not allowed to graze. This attitude is not only uneconomic, because money is spent for an education that has no specific aim, but it is also dishonest to continue it.* (Verwoerd, 1954)

Such statements were among many that seem to have compelled the African majority population to wage a struggle to end racial oppression in South Africa. The struggle against institutionalised racial oppression culminated with the first ever democratic 'One Man, One Vote' election in 1994. The majority-led government since took over the responsibility to undo what successive colonial and apartheid governments put in place, including doing away with Bantu Education and separatist development through integration of learning provision under one national department.

Furthermore, the post-1994 ANC government, undertook to integrate education and training, and established a National Qualifications Framework (NQF) to ensure transformation of the education and training system as a whole. This research project explores some of the implications of these developments. The research also explores some of the contextual dimensions of changes and challenges to the transformation of education and training. I use a personal story, to illustrate some of these dimensions.

An uncle of mine works for a chocolate manufacturing company in Port Elizabeth. He illuminated a key issue associated with redress and transformation of education and training in South Africa by relating a challenge facing them in the company. He explained how people who have received training from technical colleges easily become "redundant" in a few year's time. His account for this redundancy is based on the industry's demand for technologically enhanced practices, say over a five year period.

The new machines would often require specialised training for operation, maintenance and so on. These rapid changes in technology is said to force current operators to either undergo further training specific to the new machine or be replaced by new graduates whom are also likely to find themselves in the same position as their predecessors in a few years time. The predicament that employees such as my Uncle find themselves in, is often a result of the kind of education they have received. Given the history of poor quality education and training in South Africa, many would fail to adapt to these changes and be laid off.

Chapter Three will elaborate in more detail on the consequences of Bantu Education, separate training provision and career pathing. First there are a few issues relating to education and training under the current government that I would like to introduce.

## **4. DEMOCRACY AND EDUCATION IN SOUTH AFRICA**

### **4.1. INTRODUCTION**

As noted above, the elections in 1994 were a landmark event in SA history. They set in motion processes which sought to empower 'new' members of the South African political and economic society. The previous regime's policies and practices led to a situation which required urgent redress by the new government in just about all ministries, including that of education which has the major task of undoing Bantu Education, and meeting the needs of a rapidly changing global environment (as illustrated by the story above). A number of groundbreaking policies and pieces of legislation in the sphere of education and training have been developed and passed over the last six years.

Among these are the Higher Education Transformation Bill (1997); the Skills Development Bill (1999); the South African Qualifications Authority Act (1995) and its offspring the National Qualification Framework. Common among all of these legislative acts, is their focus on redress and the empowerment of all citizens. They aim to ensure that all learners in the education and training system in SA, are able to function competently in roles associated with their chosen profession, and as citizens of South Africa. Thus the Department of Education's White Paper on Education in 1997(p. 9) mentioning that:

*South African transition from minority rule and apartheid to a democratically elected government requires that all existing practices, institutions and values are reviewed anew and rethought in terms of their fittingness for the new era.*

It was on this basis that an act of parliament was promulgated to give guidance to the transformation of the entire education and training system in SA. The South African Qualification Authority Act of 1995 (SAQA) and its regulation framework, and the National Qualification Framework (NQF) are among the two most important instruments for educational transformation since the onset of the democratic government. This Act was based on an ambitious policy articulated in the joint White Paper on Education and Training (1995), developed by the Ministry of Education and the Ministry of Labour.

This policy statement led to further policies that state that government would strive to provide training that would enable learners to fully contribute to the economic growth of the country (Department of Labour, 1997).

These developments are significant to this research project, as it explores some of the implications of these policies in the context of environmental management training.

## **4.2. TRANSFORMATION, EDUCATION AND TRAINING**

The SAQA Act of 1995 made provision for the establishment of an authority with powers to decide on the direction to be taken by education and training in South Africa. A basic feature in terms of responsibilities was reviewing the relevance of current education and training qualifications taking into account the future developmental needs of both the country and its human resources (SAQA, 1995).

The South African Qualifications Authority (SAQA) has been mandated to work with other stakeholders to develop the NQF to serve as basis upon which new qualifications are to be developed and existing ones accredited if they meet the prescribed criteria. The Department of Education (1995:22) states the following:

*[ the NQF will be] a scaffolding on which new levels of qualifications will be built, and it creates strong possibilities for the development of new qualifications, particularly those that enable easier access to education and training, an integrated approach to education and training, recognition of prior learning and both vertical and horizontal mobility of learners and workers.*

Besides new qualifications, transformation in terms of worker training, in my opinion, entails high quality training courses which take into account the worker's cognitive level of development, current functions and possible future functions or opportunities. These training programmes should also consider issues of redress, access and equity (as indicated by the NQF). Most importantly, employers and other training providers should strive towards the kind of training that would provide skills necessary for both economic, professional, and personal development. In essence, the focus on training needs to be broad to include areas over and above just the attainment of technical competence.

Chapter Three will further the discussion on the policies relevant to the study, and the NQF as a tool for redress in the education and training sector. The provision by the NQF for developing new qualifications is opportune to those who are active in the field of environmental education and environmental management, as it opens up the opportunity to develop environmental qualifications in the fields and at levels where these have not previously existed.

The following section will briefly explain the history of environmental learning in South Africa especially the process of lobbying for its inclusion in formal education curriculum.

### **4.3. ENVIRONMENTAL LEARNING IN FORMAL EDUCATION**

In the early 1990's, a group of practising environmental educators began lobbying for the inclusion of environmental education in formal education. An Environmental Education Policy Initiative, followed by an Environmental Education Curriculum Initiative was established, which recommended that environmental education be adopted as a cross curricula focus or theme (see EECI minutes, 1996).

The Department of Education approved of this suggestion. In the White Paper on Education and Training this approval was expressed as follows:

*Environmental education, involving an interdisciplinary, integrated and active approach to learning, must be a vital element of all levels of education and training, in order to create environmentally literate and active citizens and ensure that South Africans, present and future, enjoy a decent quality of life through a sustainable use of resources.*

Department of Education (1995:18)

I would like to point out that at this stage that environmental learning remains in policy and is not widely adopted in practice. Nonetheless environmental learning is a theme that is currently being explored and expanded upon in both Curriculum 2005 and other learning programmes to fit it in the NQF (see Chapter Three for a diagram illustrating the different qualification levels). The task of co-ordinating the policy review process to enable opportunities for environmental learning was taken up by an Environmental Standards Generating Initiative (ESGI), which developed out of the EECI (ESGI, 1999).

During one of the ESGI meetings a need for reviewing qualifications in the field of environmental management was highlighted (see ESGI minutes, November 1998). This study aims to assist the ESGI team with the analysis of the field of environmental management, to inform the possible development of new qualifications. An environmental management Standards Generating Body has recently been established by SAQA, and this research report should therefore inform the development of qualifications in this SGB.

### **5. ENVIRONMENT AND ENVIRONMENTAL MANAGEMENT CAPACITY**

Emerging from a past characterised by divisive policies, the 1996 Constitution (Act 108 Of 1996) of the Republic of South Africa is an attempt at legislating and therefore entrenching the rights which people have been denied in the past, and ensuring that these rights will never be taken away. There are various spheres that need redress and protection.

Environment is one of the spheres that was exploited by colonial and apartheid governments, and through Clause 24 of the Bill of Rights it has been granted perpetual protection.

The clause states that "everyone has the right to an environment not harmful to his/her well being; protected for present and future generations" (RSA Constitution). A correct reading of the clause should reveal that it is not only about protecting the environment to enhance health and well-being, but that it is also about how people as individuals, community, state and organised business may join hands for the first time ever in increasing their efforts towards sound environmental management.

A commitment to maintaining if not improving the country's environmental integrity can be observed in the development of the National Environmental Management Act in 1998, which tries to deal holistically with issues concerning environmental management.

The worrisome factor however is how to bridge the forever widening gap between policy and practice, the latter requiring competence, and a commitment to proactive action. Fakir quoted in Macfarlane (1999: 4) has the following to say about the human resource development in this country, "with South African environmental priorities in mind, a further imperative is management training".

Competent environmental managers will ensure not only that our natural resources are not depleted through unwise, greedy and wasteful usage, but that as a country we employ innovative means to make sure what we have lasts us longer.

Trading internationally has meant that our standards of production have to be at acceptable international levels. The international organisation entrusted with the development of these standards is known as International Organisation for Standardisation (ISO), with environmental management standards referred to as ISO 14001 (South African Bureau of Standards, undated).

In South Africa, these standards are used in tandem with existing national environmental management regulations. Implementing and maintaining these standards will require (further) training. This issue is significant to not only new recruits in the field, but also those already in the field without a solid knowledge foundation in environmental management.

Many new positions have opened up in the field of environmental management. Given the requirements of legislation some are affirmative action positions (see Employment Equity Act, 1998). The Employment Equity Act will have to be adopted by all state departments and private companies, with the principal aim of opening up opportunities to the formerly disadvantaged sector of the country's population in order for them to actively participate in developing the economy.

Against the background that has already been provided, it should not come as a surprise that these new incumbents are often doubly in need of quality training. This can be attributed to either poor educational background or 'environment' not being well represented in their education and training, as the concept is new to many.

As mentioned above, in one of the meetings of the ESGI Forum, members conducted a brief analysis of the environmental management learning field. That exercise highlighted a need for new qualifications at an 'entry level' (Janse van Rensburg, pers.comm., 1999).

The term '**entry level qualification**' for environmental management is used in this study to refer to a level 4 or 5 qualification for those who are working at a relatively unskilled level and with no or few post school qualifications. Diagram One in Chapter Three illustrates the new levels of qualification under the NQF.

**Environmental management** in this study refers to the process of employing the "best practicable environmental option, taking into account the effects of decisions on all aspects of the environment and all people in the environment" (RSA, Act 107 of 1998: 8).

This study also refers to '**lower level managers**' – they are the people that come into contact with the environment, for instance, pruning town garden trees, conducting anti poaching patrols, monitoring onsite environmental impact during operations and so on. A manager in this category has more practical responsibilities, is more involved in fieldwork and actively participates in executing environmental management tasks.

## **6. SCOPE AND GOALS OF THE RESEARCH**

Against this background and in response to resultant opportunities, this research project aims to explore a possible need for an entry level qualification in the field of environmental management, i.e. a level four or five certificate or diploma, as outlined in the NQF (Phillips, 1999).

In an attempt to clarify what it is that environmental management practitioners do or should do, the research project focuses on their work place roles and competencies. Each 'role' requires a number of applied competencies, competence being the demonstrated ability to perform a set of tasks with understanding and reflexivity (National Training Board, 1997).

The research will also contribute to a 'field analysis' through a survey on existing training offerings in the field of environmental management in South Africa. The survey will aim to reveal gaps or areas that are not covered by Environmental Management training in South Africa.

The study is not aimed at providing a comprehensive overview of the field of environmental management practice or training, which falls outside its scope. It is aimed at gathering information for developing possible entry-level qualifications in the field of environmental management. Such information would be useful to qualification designers (e.g. in an environmental management standards generating body) or developers of environmental management course curricula.

### **The goals of the research are:**

To identify the kind of areas new environmental management practitioners may need training in, by investigating:

- The roles that such environmental management practitioners play in relation to environmental management within their institutions.
- The competencies required by these environmental management practitioners for such work. Qualifications required for the job and for career advancement.
- To assess whether current training opportunities in the country address the needs of environmental management practitioners at an entry-level, by identifying existing training courses and qualifications in South Africa in the field of environmental management, with a specific focus on people without post school qualification in the field.

## **7. SUMMARY**

In this Chapter I have provided background to this research project, its scope and goals and the manner in which my background has contributed to my particular interest in the study. I also noted developments that highlighted the need for a study of this kind, especially relating to current policy changes in education and training, and the environmental standards generating process.

I have presented some background about the field in an effort to demonstrate the need for this study. I discussed some issues pertaining to education and training in the context of a strong need for redress as change in government positioned the presented the country with new challenges. Thus, environmental management training has been briefly introduced in relation to political, economic and educational transformation and the broadening of access to the growing sector of environmental management. The following chapter presents an account of the tools of enquiry I have used in conducting this research project.

## **CHAPTER TWO: RESEARCH METHODOLOGY**

### **1. THE RESEARCH PARADIGM**

The purpose of this chapter is to present the conceptual and methodological tools that I employed in conducting this study. The first topic to be dealt with is the paradigm within which this study has been conducted. I then introduce the research and data collection methods as informed by both the paradigm and my perspective on the subject under study. Lastly I reflect on the chosen methods and data collection techniques.

In my view every research question is complex, and that complexity may vary according to aspects such as the merits of the topic or intended use of outcomes. Acknowledging the inherent complexity of all research questions required that I considered my own research question from as many viewpoints as possible before choosing a paradigmatic framework for the research. The outcome of such an exploration was an improved clarity on the research question itself and how to conduct the research and writing up of findings.

As noted in the previous chapter, I have an interest in social and educational transformation. I was interested in finding out about environmental management practices, and their implications for education, and I therefore needed to select a research paradigm and research techniques that would allow and give credibility to the subjective meaning that people have of their situation. Among the many research paradigms employed by scholars today, post-positivism appeared the most appropriate for this study and the manner in which I wanted to conduct it.

Choosing to conduct this study within a post positivist framework made it possible to capture and value qualitative information, and allowed me to probe deeper. Post positivism as a paradigm embodies various methodological schools that commonly value the meaning and ideas people have of or about their situation. Cantrell (1986) refers to these methods as "interpretivist".

De Vos (1998:241) argues that this form of enquiry, is predominantly "interpretative [in its] approach, is idiographic, thus holistic in nature, and the aim is to understand the meanings that people attach to everyday life". This approach would provide a methodological framework which would enable me the scope to tap into the life-world and views of the research participants.

Interpretative research moves from an epistemological premise that believes that knowledge arises from observation and interpretation (see De Vos, 1998). From such an observation exercise, information in the form of words is interpreted.

The experiences of research participants are told by them, based on selected aspects of their world. These experiences are then interpreted by the researcher. Taylor (in Denzin, 1971: 121) highlighted the following challenge with regards to using an interpretative approach to inquiry:

*... if our interpretation seem implausible or if they are not understood by our interlocutors: there is no verification procedure we can fall back on. We can only continue to offer interpretation; we are in an interpretative circle.*

As a newcomer to research, I was enthusiastic about undertaking a research project, that could contribute either to better understanding of, or the solving of a problem. Schwandt (1997: 121) argues that interpretivist research “develops contingent, fallible knowledge claims” which are deduced from case specific or individually specific, detailed study.

Qualitative research is indeed subjective, but that does not make it less scientific. Hesse (in Lather, 1986: 257) argues that, “attempts to produce value neutral social science is increasingly being abandoned as at best unrealisable”.

Where possible or needed, quantitative research tools can be used in an interpretivist, post-positivist study as I have done. A combined use of methods under a paradigm should not compromise either the method or the paradigm, but rather aim to strengthen and further clarify the research question. In this study, I used two research methods, case study and a survey.

While the survey provides a broad overview of existing training opportunities, the case studies provide a somewhat more in-depth insight into individuals’ environmental management roles and associated competencies, as I explain next.

## **2. THE CASE STUDY METHOD**

This is a widely used research method, which over the years has proved to be a good tool when investigating cases where the phenomenon under study is not readily distinguishable from its context (Yin, 1993: 6). Case studies are popular in psychological and detective or forensic studies, as they assist in deconstructing a case, thereby providing a subject’s profile. Case studies were chosen as a method in this research because they provide an in-depth perspective of people’s behaviour within their individual and social context (Cantrell, 1993). It is therefore a method that is able to “catch the complexity of a case or phenomenon” (Stake, 1995: xi).

Another advantage with employing a case study method is its ability to “probe deeply and analyse [a case] intensively” (Cohen and Manion, 1994: 106). My research question endeavoured to explore environmental management in a changing South Africa. The environmental management field is complex, up to now largely unexplored, and seemed to require an in-depth look, even if on a small scale.

I have used what Yin (1993:5-6) calls multiple and descriptive case study method. The multiple case method requires that “cases are selected on the basis of their replication or differences”. Yin’s rationale or description of multiple case studies influenced the selection and composition of my cases, i.e. selecting participants functioning at the same level (entry level) of management, from different contexts.

On the other hand a descriptive case study method would give a “complete description of a phenomenon within its context” (Yin, 1993:5). The combined use of these methods allowed me to gain insight into a maximum diversity or range of roles and competencies as observed from the participant environmental managers. For example, whilst managers were all at entry level they were approaching this task from different perspectives and thus their meaning of what they were engaged in, would often mirror their organisational view of the ‘environment’ and this would be reflected in their style of management.

I did not want to produce a research report that would be of little value, I wanted this research to have real-life application value. Cohen and Manion (1994: 122) state that case studies “begin in a world of action and contribute to it”.

The case study method requires that issues are investigated in their natural setting (see Yin, 1993). The case studies I chose to investigate were three management practitioners in three different contexts. By studying them in their contexts it was possible to capture the differences and/ or similarities as I moved from one case to the next and had the benefit of a ‘bird’s eye’ view.

The three contexts were a Non Governmental Organisation (NGO), Local Government and Industry. The decision to select and study these cases was based on the differences they exhibited, i.e. the range of contexts within which environmental management (broadly defined – see Chapter 3) is taking place. Case study research and post-positivist approaches to inquiry provide guidelines for what can be termed ‘controlled sampling’. This kind of sampling allows a researcher to “purposefully select [cases and thus] allow the researcher to focus in depth on issues important to the study”, in this case, the role of an environmental practitioner and the required competencies to perform the job (Cantrell, 1993).

A note I would like to make at this stage regards changes made since the original design of this research. Initially I planned to include a participant from a Small Micro Medium Enterprise (SMME) sector.

But I could not find a viable SMME within the 'manageable' distance of the main study site. I therefore decided to include someone from the big industries sector. I would have liked to include an SMME case study, since these institutions are seemingly earmarked for economic redress strategies, enabling those from the previously disadvantaged sector to join the economy as entrepreneurs.

Another facet of this study concerned the gathering of information on environmental management related training throughout the country. In order to obtain that information, I used a survey, sending out a number of questionnaires to training providers in the country. The following section explains briefly how the survey method was used.

### **3. THE SURVEY METHOD**

I decided to use a survey because I wanted to get an overview of the available training opportunities in the field of environmental management in the country. The survey therefore was intended to complement the case study data. It provides another level of information, and further insight into training needs and provision in the field of environmental management.

Weiss (1994: 160) asserts that, data generated using survey questionnaires can help with "integration" of facts or findings "into a single coherent story from otherwise isolated areas". In this study, I hoped that the surveys would play the role of being both a 'mirror' and a 'weapon'. A mirror in the sense that it would reflect existing training opportunities in this field; and as a weapon in the sense that, the data on itself can be used to motivate for further qualifications and additional training programmes if the results pointed to the need (gaps) for such.

My aim with the survey was not to comprehensively cover all general training institutions, but rather to focus on those that were providing training for environmental managers. A postal questionnaire survey appeared the most viable option for gathering this information (see Appendices 2.1 and 2.2 for the survey questionnaire and covering letter). The sampling procedure is discussed in section 4.3 of this chapter.

The survey was designed to gather the following information: types and levels of environmental management field related qualifications offered, groups targeted by the current course providers, qualifications accreditation; and curriculum topics covered. The kind of information requested from providers was not limited to entry-level training programmes only. This was decided upon to see if there was any similarities in areas of focus among institutions, to identify common areas that could provide insight into the demand for competencies. The following section discusses the how the survey was used, as well as the other research tools used in the study, and their features.

## **4. DATA COLLECTION TECHNIQUES**

### **4.1. OBSERVATION**

During the proposal development phase of the study, I identified specific aspects to observe in the field. I prepared a 'daily observation schedule' which I used to document my observations in the field. Cantrell (1993: 93) sees observation as, "walking in the participants' shoes", thereby enabling you to live their lives momentarily whilst you are with them. Most of my data was collected through observation.

There are various forms of observation, Cantrell (1993) offers a useful categorisation when she refers to the different types as being part of a "continuum", in that a researcher can choose to either participate in whatever the 'subjects' are doing or not to participate at all. In some cases a researcher can locate somewhere in the middle of that continuum. My level of involvement also varied from case to case (see Section 5.1 of this chapter dealing with the process of conducting the case study observations for more information).

I generally chose to be an active participant. Cohen and Manion (1994: 109) argue that "in a neutral setting it is difficult for the researcher who wishes to be covert not to act as a participant". As such I took the opportunity of taking part in activities where the participants were involved, and I asked questions during these activities with due regard, of course, for spontaneity. I spent an average of two days with each participant in the field. There were variations in proportion of time-spent say, observing and interviewing. The determining factor at times was their schedule and nature of tasks they were undertaking. We discussed other activities that they undertook in my absence afterwards, and I added this data to the observation data, adding it to the daily observation schedule and scheme of things I observed for that day. I used the technique of taking field notes to capture the observations as thoroughly as possible.

### **4.2. INTERVIEWS**

I conducted two kinds of interviews. In the first kind, I sought information or explanations from participants about incidents that occurred whilst I was observing them, which I might have failed to capture and locate in the observation schedule or scheme of daily happenings. Questions for this type of an interview were mainly derived from my field notes.

In cases where participants could not provide answers to my interview questions, the questions were structured and reserved for later interviews with their colleagues or senior managers. Interviews are a valuable tool for methods associated with the post positivistic paradigm, as interviews allow researchers to, gain in-depth insights into an individual's experience, and insights into the dynamics of their institutions.

### **4.3. QUESTIONNAIRES**

A questionnaire is a set of systematic questions designed to probe information under a single or different topics (see Seidman, 1991; Irwin, 1998; and Cohen and Manion, 1994). A researcher can personally administer questionnaires or do so with the aide of assistants assuming the interview format. On the other hand, like I did, a questionnaire can be posted with instructions on how respondents should complete and return the completed ones.

Mailed questionnaires are said to have a low return rate. This issue should be taken into account when one designs the questionnaire and when you compile your survey samples. Instead of mailing an extra tenth, for an example, to offset an unsatisfactory response I did what Davidson (in Cohen and Manion, 1994: 92) suggested, to make sure that questions are " clear, unambiguous, and uniformly workable". I phrased my questions quite succinctly and as one would see, the reply template could be reproduced allowing respondents to decide whether they should provide more information than required.

Counting in my favour at the time, was the fact that most institutions are currently reviewing their curriculum and qualifications in an effort to have them accredited by SAQA. Most of those that I had enlisted to supply me with information were active players in the provision of environmental management related training. Due to the fact that there are only a few institutions offering specialised training in the environment field, sampling participants proved to be a relatively easy task.

I requested a list of service providers from the Department of Environmental Affairs and Tourism, their database contained 22 training providers most of whom were based in academic institutions. I included all of them on my survey sample and added a few that I had collected through newspaper adverts and through staff at the Environmental Education Unit. My final sample contained just over 30 training providers, a sample that I would argue as being representative, as well as comprehensive.

## **5. DESCRIPTION OF THE RESEARCH PROCESS**

### **5.1. THE PROCESS OF DOING THE CASE STUDIES**

I had no difficulty in identifying participants for this study, and I was able to obtaining their full co-operation. Two of the participants had corresponded with the Rhodes Environmental Education Unit to inquire about environmental related courses and qualifications. After approaching these two they agreed to participate in this research. Colleagues within the unit who run the Gold Fields Course on Environmental Education for Industry, Business and Local Government assisted me with contacts for the industry participant.

All of these research participants were involved in environmental management practices, and had daily contact with environment, in the course of fulfilling their daily tasks. I used this as an indicator to help me define what was meant by 'entry-level' management in this study (see Chapter One for a further description of entry level management). As environmental managers, all of the research participants had no accredited qualification in the field of environment management, some were recently handed environment related tasks and were actively seeking courses that would assist them to understand their field of operations better, e.g. Dinga from industry.

I preceded my extensive information gathering visits with prior site visits. After the initial site visits which lasted for a day, I compiled a scoping report for discussion with my research supervisor. This was used to refine my observation schedules and questions. I spent an average of two days on each field visit. Cohen and Manion (1994: 290) explain the value of pre-research visits when they state that "fore-knowledge of the situation obviously reduces the task confronting the investigator, since the interview need not be devoted to discovering the objective nature of the situation". While this is true, the objective nature of the situation can be probed further, and can often be confirmed/ clarified in interviews at a later stage, or during subsequent site visits.

During my first field visit I was concerned about whether I would influence things by my presence in the situation. I was also concerned that I would be looking for issues that only support my thesis or my pre-defined ideas of what the situation would be like. I would like to believe that these might be the kinds of thoughts that cross the minds of newcomers in research, especially in qualitative research. The role a researcher plays in the process of gathering and interrogating information is important to consider when collecting and interpreting data in qualitative studies.

Cantrell (1993:101) contends that a researcher “lies at the heart of credibility [of the study] since this individual serves as both the instrument of data collection and tool for data analysis”. I think the level of consciousness I had of the possible impact my presence would have on the way in which things are run, enabled me to be reflective of my role, and allowed me to respond to each situation, as was demanded in the particular context. For example, in workshops I had to decide when and why I should actively participate, and I chose to participate only when I felt that my contributions would not affect the situation too much.

Conducting fieldwork for a case study is tiring, and difficult. My decision not to record interviews since I was not to do detailed discourse analysis presented me with a challenge at times. Because my notes were brief and in some cases taken in shorthand there were instances where I felt it would have been better to have recorded all the discussions, so as to have verbatim quotations.

I am also not the kind of person who writes in point-form or shorthand, as a result some of the information was not easily accessible during analysis since I chose the format of capturing the daily proceedings as a detailed narrative. I was forced to pay absolute attention during fieldwork so as not to miss a thing. I regard this requirement as an advantage though, as it made me attentive at all times whilst with the participant.

Yin (1993: 7) refers to the above situation as “being wholly engaged” and this is what sets the case study method apart from the other forms of inquiry. It is said that the effort of paying constant attention can lead to mental exhaustion after a day in the field (see Yin, 1993; also Cantrell, 1993).

I always made sure that my shorthand notes are expanded on into the detailed narrative before I went to sleep. Cohen and Manion (1994: 122) warn that a case study researcher should “never resume with the next observation until the notes from preceding observation are complete”. I used the narratives that I wrote up to test if participants agreed with my observations and the way in which I captured and wrote the narrative.

I read the narrative notes captured the previous day for each specific case to the relevant research participants. This process is known as constructing internal face validity (Yin, 1993; also see Lather, 1986 on face validity). This was done unless there was sensitive information from other sources (usually senior managers), as this, in my opinion would have caused unnecessary bad blood in the environment once I left.

Interviews were left until the very last day. Interview questions were normally prepared using the broad research questions that I had defined after the first site visits, and issues that were still unclear after concluding the observation sessions. In some cases though I had to make exceptions, as people were not always available to be interviewed, particularly senior managers. I therefore had to interview immediate seniors, and some of the colleagues that I interviewed assumed the duties of seniors in their absence, for example in the case of the local government participant when the town clerk was on 'forced' leave due to tensions in the institution.

New information was analysed in the light of either the scoping reports or the previous days' activities. Whilst writing up the activities of the day, I began to reflect on those issues that were immediately relevant to the study. For instance where a competence was identified I would not only write it in its context, but also reflect on it, in terms of the broader context of environmental management. This exercise helped with early data analysis, and helped to establish the categories, or grouping of the findings. This also helped me to distinguish roles from competencies in and among cases.

Detailed analysis was left until about a month later when all the fieldwork for the cases was complete. The findings about the roles and competencies have been grouped under broad categories, e.g. word processing, policy implementation or formulation, resource inventory and so on (see Chapter 4 on case study findings).

## **5.2. THE PROCESS OF CONDUCTING THE SURVEY**

Use of the survey method presented me with a number of challenges, the first of these being to reach as many of the role players in the field of environmental management as possible. It was therefore necessary to make sure that I got responses from as many if not all of the academic, private and non-governmental organisations to whom the questionnaire was sent.

The questionnaire was designed to be easy to complete and therefore I knew that if sent and perhaps followed up with a telephonic or electronic mail inquiry, chances of responding would be fairly high.

The names of institutions providing courses and qualifications in the field of environmental management were supplied by a contact in the Department of Environmental Affairs and Tourism (DEAT). The rest of training providers was sourced from colleagues in the Environmental Education Unit and mass media advertisements.

The questionnaire that was sent out included a covering letter (Appendix 2.1) which explained why such information was required. Also mentioned in that covering letter was that Rhodes University was not necessarily in a position to offer such (entry level environmental management) qualification, thereby making the outcomes of this exercise accessible for use by those seeking to offer a qualification of this nature. The survey questions were drawn up so as not to limit information provided to what training providers might deem level 4 or 5 in terms of the NQF, rather were open to elicit information on as much of the training as they were offering in the field of environment management.

The questionnaire was sent via post or electronic mail where possible to just over 30 training providers, 22 of which responded indicating to be offering an average of 2 environmental related courses. Some universities were offering more than 10 short courses and various graduate courses. Some of the short courses appeared to be shortened versions of post-graduate study modules. More than 80% of these courses focused on natural resource management including technical or specialised management training, e.g. Environmental Impact Assessment, and Water Quality Management.

Data from the survey was easy to organise and interrogate. In some instances though there was too much detail which was interesting but could not be used. Chapter Five presents the findings of the survey exercise.

## **6. SUMMARY**

This chapter has dealt with the research methods that were selected and applied in this study. This has indicated the location of this work in the landscape of research paradigms. I have also shared the choice and process of using research tools and methods that correspond with post positivism as a chosen research paradigm, and I have given some insights into how the research tools were used.

I have given a brief overview of how I approached the data analysis. Chapter Three charts a landscape of literature relevant to this study. In so doing, the position at which this study locates within the existing body of knowledge in the broad field of environmental management and general training in South Africa will become clear. The next chapter analyses and discusses the literature that forms basis of the field of this research project, i.e. environmental management and 'field' specific learning challenges for practitioners.

## **CHAPTER THREE: LITERATURE REVIEW**

### **1. ORIENTATION TO THE CHAPTER**

The chapter aims to provide a more in depth background on the topic of environmental management using relevant literature to demonstrate the necessity of a study of this nature. The chapter takes issues raised in the introductory (Chapter One) a step further.

There are a number of issues that have resulted in the present relatively poor status quo of training and environmental management in South Africa. Previous governments have had a profound impact on education and training in South Africa. As it could be observed from Chapter One, the effect of separate development policies touched numerous spheres of the lives of the people of this country.

The efforts of the democratic government in redressing the past injustices, mostly in terms of policies and sometimes programmes, form the backdrop to this study. In interrogating the literature, I have brought in issues such as globalisation which are very relevant to subject of environmental management in South Africa today. It would be proper to first attempt to place in perspective the specific role played by separatist governments with regards to training and environmental management.

### **2. AN OVERVIEW OF TRAINING AND ENVIRONMENTAL MANAGEMENT DURING THE APARTHEID ERA**

Apartheid did not only leave South African with racially segregated residential areas but also with educational inequalities in and among the different racial groups. Both spheres affecting this study, viz. environment, and education and training, were among heavily affected by these policies.

#### **2.1. ENVIRONMENTAL MANAGEMENT AND APARTHEID**

Apartheid did not only affect the way races related to one another, but even the manner in which people conducted their lives in their own households; the activities they were engaging themselves in; their sources of living and where they could stay (Ramphela and McDowell, 1989). This situation has resulted in what can be described as 'two worlds in one country', with blacks often passively following the dictates of their dominant white counterparts, characterised by severe inequalities and different levels of wealth (see Wilson and Ramphela, 1989 on economic inequalities as manifestation of apartheid).

The majority of black people never owned land in areas designated as the 'white man's land', these being any area outside the 'reserves'. In my opinion that situation led to blacks feeling less compelled to care for their surrounding environment as their struggle was about survival in the face of white supremacist policies.

Gomolemo Mokae's point in (Cock, 1991) regarding the manner in which blacks relate to their environment captures the sharp racial contrasts brought about by apartheid when he said: "Whites see beauty in the flight of birds and grace in the movement of animals. Blacks see a possible source of food". In the 'reserves' where black people were allowed to own land, there was stock overcrowding and human population pressure, a situation that led to current levels of severe environmental degradation (see Ramphela and McDowell, 1989 for a discussion on the homelands state of environment).

## **2.2. TRAINING DURING THE APARTHEID ERA**

The decision to provide education of inferior quality to the so-called 'Bantu' was an effective strategy for sustaining white domination in South Africa. Government was not willing to commit resources to educating a black person, whose sole function was to supply manual labour to the white owned farms, industries and gold mines (see Chapter One, for Verwoed's statement about Bantu education, and Christie, 1991).

Bantu education provided blacks with few (or no) skills for managing even the limited, frail environment they had some control over in the homelands. In addition, environmental mismanagement was not restricted to black dominated homelands. Other primarily white owned activities such as industries, commercial farming and so on had a profound impact on the environment. In the absence of adequate policies regulating environmental impact, and poor quality education and training, particularly in the context of Bantu Education, there was little focus on, or identified need for environmental management education and training prior to the 1994 elections.

This state of affairs was noted by the ESGI in early attempts to scope existing environmental management qualifications and opportunities (ESGI, 1997). Environmental management training was limited mainly to post graduate programmes and short courses too expensive for the average citizen (see Mbanjwa, 2000).

## **3. ENVIRONMENTAL MANAGEMENT AND TRAINING UNDER A DEMOCRATIC GOVERNMENT**

### **3.1. CURRENT STATE OF ENVIRONMENTAL MANAGEMENT IN SOUTH AFRICA**

South Africa is changing, from a past where people and environment have been treated as separate entities, to an era where integrated approaches to environment are encouraged (Cock, 1991: 1-17). The point that Luke makes in Darien (1999) sums up the manner in which environment should be viewed and treated when he says:

*The environment does not exist as a sphere separate from human actions, ambitions, and needs, and attempts to define it in isolation from human concerns have given the very word 'environment' a connotation of naïveté in some political circles...but the 'environment' is where we live; and development is what we all do in attempting to improve our lot within that abode. The two are inseparable.*

Most importantly, in the broadening of the face and practice of environmental management, transformation seeks to make environmental management a responsibility of each and every citizen of this country (see National Environment Management Act, 1998).

The 'two worlds in one' phenomena of South Africa presents an environmental management challenge. On the one hand the country is faced with problems of waste typical of First World countries where abundant resources mean that people can consume more. Whilst on the other, poverty devastates the rural and illiterate community, a scenario common among Third World countries which seems to worsen every day (see South Africa's State of the Environment Report, 1999).

In this study therefore, using both of Cunningham's definitions of environment where he says, 1) the circumstances or conditions that surround an organism or group of organisms, or 2) the complex of social or cultural conditions that affect an individual or community; environmental management will refer to a process of managing the interactions between humans and nature (Cunningham, 1990: 3). I will however not be viewing his statements as an either or, since the view that humans and 'environment' are exclusive no longer commands validity.

We depend on the environment for sustaining our lives. Unfortunately, the environment does not have inexhaustible resources: an issue that puts a limit to perpetual destructive expansion (see Yeld, 1997; Clarke, 1991). Special attention therefore has to be given to equipping both those who are charged with, and those benefiting from environmental management.

Through NEMA, South Africa has in principle or policy taken a step in reviewing its practices. In order to complete this step, in my opinion, there needs to be proper human resource provision, which takes into account issues of national transformation. That transformation will take into account a growing realisation that issues affecting South Africa's people can not be dealt with separately from environmental realities.

Such a practice would be in line with the unfolding picture since the demise of apartheid rule. Previously nature conservation (especially in fenced game reserves) was over emphasised at the expense of integrated environmental management practices. This signals a new beginning or challenge for training providers and practitioners alike.

It is not only that people and the environment are inseparable, but that in South Africa it is a constitutional right to have an environment that is managed in a sustainable manner (see South African Constitution, 1996 Clause 24 of the Bill of Rights). The NEMA is a giant stride forward in broadening participation in the management of the environment.

During my participation in a few provincial workshops dealing with the national environmental policy, I was overwhelmed with the enthusiasm that ordinary black people displayed in tackling issues that were previously seen to be primarily a 'white' person's concern. The participatory nature of the CONNEP policy making process (preceding NEMA), was significant in broadening people's participation in environmental issues in South Africa.

At the same time, however, while many people have become more involved in environmental issues, I have, on numerous occasions, noted the wide ranging lack of understanding that the many people experience in relation to environmental issues. Often, the same people who show enthusiasm for resolving environmental issues, are disadvantaged by a lack of broad understanding of these issues.

This phenomenon has also been noticed in environmental education professional development programmes such as the Gold Fields course (Lotz, pers comm., 2001). Therefore the realisation that people are an integral part of the 'environment' and have the right to exercise ecologically sustainable control over their local environment is not enough. The next section looks at the current state of training in the country, linking it to environmental management, and patterns of globalisation.

### **3.2. CURRENT STATE OF TRAINING IN SOUTH AFRICA**

As pointed out in Chapter One, the current government is attempting to bring about major transformation in the education and training spheres. The Department of Labour (1997: 6) recognises that people are "our country's most important assets".

That is why there are vigorous efforts to create more training opportunities and improve our country's poor record in training (Department of Labour, 1997). The strong motivation for training provision seems to be the economic performance of the country (see Department of Labour, 1997). As a result, the Department of Labour (1997: 7) suggests a "Skills Revolution".

The observation by Young in Jansen and Christie (1999) provides insight into the progress in the manner in which South Africa regards training and qualifications when he says:

*In SA, it is not only the economic role of qualifications that the new government has recognised, but also their social and political role in sustaining (or overcoming) the gross inequalities that have been inherited from apartheid. The political and economic roles of qualification come together in the recognition that it will be crucial in determining whether SA ... is able to be internationally competitive in the next century.*

It would therefore seem that if the government has a strong commitment to transforming education and training, then a remarkable redress impact in this sphere may well be possible.

South Africa has become a full member of the global community since being accepted after the democratic election of 1994. Processes of globalisation are taking place in our country, and it appears that what is needed at this stage is to explore its implication for South Africa so that we can plan accordingly. I am neither a supporter nor an opponent of globalisation, but wish to explore the implications of globalisation for education and training, as a way of providing further insight into this study.

Increasingly, South African industries are joining in, and being influenced by global trade. Faced with formidable competition and a developing industrial sector, as a country we are expected to meet minimum international environmental standards, to participate in global trade agreements. Market forces are providing strong impetus to join international trading patterns, which can lead to benefits to the South African public and workers. One of the implications of South Africa's entry into the global trade arena includes the fact that, environmental performance and management standards are improved (Molefe, 1999).

In addition, integration into the global market requires competent and competitive workers. Carnoy (1998: 1) states that, "... if knowledge is fundamental to globalisation, globalisation should also have a profound impact on the transmission of knowledge". Hopefully the impact will include increased training opportunities for South African workers.

The globalisation 'tide' that South Africa is experiencing does however hold dangers. Among them is the unscrupulous exploitation of environmental and human resources, a scenario resembling the colonial period. Peng (1991: 9) observed that that, "The peoples of the colonies lost their rights to sovereignty and self-government, and their economies were misshapen to service and profit the colonial masters". It was on this basis that as far back as the 1970's scholars such as Mc Closely made recommendations that:

*A revolution is truly needed – in our values, outlook and economic organisation. For the crisis of our environment stems from the legacy of economic and technical premises which have been pursued in absence of ecological knowledge. That other revolution, the industrial one, is turning sour, and needs to be replaced by a revolution of new attitudes towards growth, goods, space and living things.*

Mc Closely (1970)

Thus, participation in the global village could prove to be a double edged sword. On the one hand, it may lead to improvements such as economic development, improved environmental management and improved training, and on the other, it could be a modern way of negotiated exploitation, motivated by economic exploitation.

Peng (1991: 1) holds the view that, " it is fashionable to say the world is at the crossroads. The old order is crumbling, the new is yet being born". The new is what Mc Closely was advocating for. If we are to embrace globalisation with Mc Closely's suggestion, the need for a change in attitude towards 'development' and 'environment' becomes quite apparent. The lack of ecological knowledge he alludes to is relevant to this study and the country.

Entry level qualifications in environmental management which this study aims to inform, would form part of the national effort to redress the gross educational inequalities that are a feature of South Africa today. But also to respond to the apparent need of preparing employees to implement the new environmental policies and legislation that are, at least partly, motivated by our participation in the global economy.

Growth in the environmental arena opens up new job opportunities, and one set of prospective beneficiaries from new environmental qualifications are unemployed people who completed their matric but with no further qualification. The new opportunities can only be utilised through appropriate and adequate post school training. The NQF aims to create access for exactly such groups (see Section 5.1 of this Chapter regarding opportunities from the NQF)

Existing environmental practitioners who are currently unqualified, over the years may have gained valuable skills during their working period. NQF related processes such as "recognition of prior learning" will seemingly ensure that they are fast tracked through the education and training system (NQF, 1997, also refer to Section 5.3).

In the next section I will be dealing briefly with the implication of Bills that are central to this study, these being: the 1999 Skills Development Bill; the 1995 South Africa Qualifications Act and the NQF; the 1998 Employment Equity Bill; the 1997 Higher Education Bill and the 1995 Further Education and Training Bill.

#### **4. NEW POLICIES RELEVANT TO ENVIRONMENTAL MANAGEMENT TRAINING**

As noted above, in this section I discuss the major legislative measures that are likely to influence the development of environmental management education and training programmes.

#### 4.1. THE SKILLS DEVELOPMENT BILL of 1999

The **Skills Development Bill of 1999** is aimed at directing and reviving training as provided by various employers in South Africa. Through SAQA and the NQF it plans to establish synergy which will see the coming together of the various training institutions and qualifications currently being offered in the country.

The Skills Development Bill also plans to give guidance to the establishment of and utilisation of a skills levy (Department of Labour, 1999). The skills development fund has now been established and institutions including government are contributing 1% towards this fund which will be nationally utilised or distributed for training. The Department of Labour talks of 'high levels' of competence, a concept that translates into the ability to perform multiple tasks with understanding and reflexivity.

Attaining high levels of competence will be a major step in the right direction, especially if one considers observations such as the one by Bethlehem (1991) who refers to past and current training as "narrow". By that it is meant that workers are unable to perform more than one task effectively, are unable to deal with problems as they arise, and are generally not in a position to innovate (Bethlehem 1991: 12). Informed by research in the ETDP Project (1997: 106) the National Training Board identified three levels of competence which are used in the Green Paper for Skills Development, viz.

- *Practical competence: Demonstrated ability to perform a set task.*
- *Foundational competence: Demonstrated understanding of what others or we are doing and why.*
- *Reflexive competence: Demonstrated ability to integrate or connect our performance with our understanding of those performances so that we learn from our actions and are able to adapt to changes and unforeseen circumstances.*

Department of Labour (1997)

Given the high levels of recruitment from the previously disadvantaged sector of the population in the workforce, training that is likely to enhance competence in this group is likely to feature most. The Bill is therefore relevant to a study such as this which hopes to offer guidance to the development of new skills training and the process of building reflexive competence.

Although not fully operational yet, there are various sectoral organised training authorities (SETA's) being formed. The key aim of these is to implement lifelong learning at workplaces, a concept or scenario sought by the Skills Development Bill. As yet it is unknown which SETA will be responsible for environmental management training.

## 4.2. EMPLOYMENT EQUITY BILL OF 1998

The **Employment Equity Bill of 1998** is intended to address past inequalities in the workplace. The Employment Equity Bill targets issues such as discrimination and unfair labour practices to minimise and hopefully even eliminate such activities where possible (RSA, Act No 55 of 1998: 2).

Operating on what the Equity and the Skills Bills seek to achieve and the provisions of the NQF, it seems possible to find ways of assisting previously disadvantaged people to establish careers for themselves and perform their duties with high levels of understanding and reflexivity. This will, of course, be dependent on whether appropriate qualifications and training programmes are provided.

## 4.3. NATIONAL QUALIFICATIONS FRAMEWORK (NQF)

The NQF and its twelve fields of knowledge, and levels and bands (see Diagram 1) provides a good opportunity for workers to embark on what the Department of Labour calls "life long learning" (Department of Labour, 1997; also see Department of Public Service, 1997 and Department of Education, 1995 about life long learning).

NQF LEVEL	BAND	QUALIFICATION TYPE	
8	<b>Higher</b>	Post-doctoral research degrees	
7	<b>Education</b>	Doctorates	
6		Masters degrees	
5	<b>And</b>	Professional qualifications	
4		Honours degrees	
3	<b>Training</b>	National first degrees	
2		Higher diploma	
National diplomas			
National certificates			
<b>Further Education and Training Certificate</b>			
4	<b>Further Education And Training</b>	National certificates	
3			
2			
<b>General Education and Training Certificate (GETC)</b>			
1	<b>General Education And Training</b>	Grade 9	ABET Level 4
		National certificates	

**Diagram 1:** An illustration of the qualification levels and bands, as found in South Africa under the provisions of the NQF (Source: SAQA, 1998).

The NQF has a responsibility to:

- Create an integrated national framework for learning achievements;
- Facilitate access to, and mobility and progression within, education, training and career paths;
- Enhance the quality of education and training;

- *Accelerate the redress of past unfair discrimination in education, training and employment opportunities; and thereby*
- *Contribute to the full personal development of each learner and the social and economic development of the nation at large.*

SAQA Bulletin (1999: 5-6)

Under the NQF, learning is organised under 12 fields. The fields are broken down into the following (1) Agriculture and Nature Conservation; (2) Arts and Culture; (3) Business, Commerce and Management Studies; (4) Communication Studies and Language; (5) Education, Training and Development; (6) Manufacturing, Engineering and Technology; (7) Human and Social Studies; (8) Law, Military Science and Security; (9) Health Sciences and Social Services; (10) Physical, Mathematical, Computer and Life Sciences; (11) Services; and (12) Physical Planning and Construction.

Unlike its predecessor policies, the NQF, judging by its objective, aims at standardising quality frameworks for learning whilst fast-tracking and establishing career-paths, particularly for those that previously received poor education and training. This includes those who have found employment in the environmental management sub-field, an area that the study seeks to investigate (environmental management is a sub-field of field 10: Physical, Mathematical, Computer and Life Sciences).

In order to design appropriate unit standards and qualifications, employers and training providers will have to know exactly what the employee needs to do. Unit standards describe the smallest 'qualifications' (with associated credits) which can be registered with SAQA. They describe the outcome of particular unit of learning (see EECI, 1999: 5). Thus, to write unit standards and develop qualifications, standards generating bodies will need insight into the roles and competencies required for specific jobs such as environmental management.

Information about these roles can be found in job descriptions, among other sources. But what if the employers are not fully aware of the scope of the job in the field of the practitioner? The knowledge of 'experts' or training providers in the environmental field might prove inadequate, given the evolution currently being experienced in the field of environmental management (it has been noted that this is a 'new' and growing field). A research project such as this can therefore play a useful role, in providing information about some contemporary trends, and roles of environmental management practitioners, established by reliable methods of inquiry. Chapter Six discusses in more detail the findings of this study in relation to the NQF and Skills Bill requirements (as noted above).

## **5. SUMMARY**

This chapter has sketched the background to, and the need for this study, based on my own insights and those drawn from an overview of some of the pertinent literature. This chapter provides a background against which the results should be viewed.

The chapter referred to the consequences of apartheid legacy on environmental management in the country, including the manner in which the black population regarded the environment and generally failed to participate in environmental management.

It highlighted some of the processes that the present government departments, organisations and institutions are embarking on to address the issue of inequality in education and training among the workers in the country. The issue of globalisation was also briefly touched on so as to point to the demands brought about by the economic integration of South Africa with the rest of the world after the first democratic election.

Lastly, pieces of legislation that have been passed in order to redress education and training related inequalities were discussed. An attempt was made to illustrate the relationship between these various policies, and their significance to this study. The following chapter provides an insight into the work of three entry-level environmental practitioners, studied against the backdrop of policy documents and other literature cited in this chapter.

# **CHAPTER FOUR: CASE STUDIES OF ENTRY LEVEL ENVIRONMENTAL MANAGERS**

## **1. ORIENTATION TO THE CHAPTER**

This chapter presents findings of this research as elicited using the research methods discussed in Chapter Two. I have decided to (with few exceptions) to use standard headings for the three cases in order to enable easier comparison. There were instances where detailed information could not be found especially on the industry case study, making it less easy to always supply comparable information for all the cases.

The three cases will be presented in the following order: the local government case study, the non-governmental organisation case study and lastly the industry case study. All cases are presented using broad organising topics, i.e.

- information about the participants;
- information on the context;
- information about the job held by the participants; including identified roles and competencies required for the job.

To re-cap, the bulk of the information presented in this chapter was collected during site visits to the institutions through observation and interviews with participants in their work situations. The rest of information was generated through interviews with seniors of the three practitioners and an analysis of institutional documents e.g. background information pamphlets, internal monthly journals, job descriptions, etc.

An average of two days was spent at each participant's place of work during which I observed and interviewed the participants. I also had an opportunity to attend a training workshop organised by one of the institutions where useful insight was gained regarding the kind of training generally conducted in that particular setting.

To document the kind of roles and competencies that were being exhibited by these practitioners including those that they lacked, I drew on my (somewhat limited) knowledge of the field of environmental management. I faced a challenge in the sense that, roles were at times not captured in job descriptions, making it difficult to supply context specific terms for identified competencies during the day-to-day performance of these practitioners.

If there appears to be ambiguity in some of the terms and concepts I have used in defining identified roles and competencies, this should be interpreted against the background of both my own limited knowledge of this evolving field and the apparent lack of understanding of this field equally by the participating employers themselves.

## **2. THE LOCAL GOVERNMENT CASE STUDY**

### **2.1. INFORMATION ABOUT THE RESEARCH PARTICIPANT**

#### **2.1.1. General background:**

Vumani (not his real name) is 27 years old and is among the lucky young people to have a job in a country and a town where jobs are not easy to come by. He was born in the same town he is working in. My observation of him both in and outside work indicated that he works well with the youth. Besides being envied for his job, I have noticed that a number of young people see him as a role model. The elders appear to be according him an unusual status and respect for a young man of his age. In one heated community meeting I attended he was delegated to head a team that was tasked with untangling the saga of the local mayor who was claiming that some people were involved in a conspiracy aimed at ousting him.

From spending time with him, I realised that Vumani has ambitions and aspirations for himself and his town, unusual among young people even where I come from. He takes every opportunity he gets to help a 'friend' from the township to make the best of opportunities that become available. These opportunities can be in the employment or education and training arena. Through his involvement with activities aimed at developing the young generation, for example local choral and drama groups, he has managed to keep young people away from the streets and mischief. He is an ambassador of the township to the town and from talking to some of his friends it appears they regard him as a pioneer seeking to prove that black people can perform well given a chance.

#### **2.1.2. Educational background:**

Vumani started his schooling in the local schools. He later went to Port Elizabeth (PE) where he completed his matriculation majoring in Physical Science, Mathematics and Biology. It was during his stay in PE that he got involved with environment related work through the Algoa Regional Services Council (ARSC). His work with ARSC earned him two nature conservation awards through project work. Working as an attachment to the ARSC, he later got two awards (Gold Shields) offered through the President's Award organisation for young people whose work and efforts are directed towards conserving the environment.

After completing matric, Vumani registered at Iqhayiya Technical College since he could not raise the requisite funds for university tuition. He later dropped out of the college due to lack of funds, after having passed Mathematics (N2) and Engineering (N2).

The Assistant Nature Conservator's position was advertised at a time when he was looking for a job to raise more funds for his studies. He applied and was employed to the position. Still wanting to continue with his education, he registered to study through correspondence at Damelin College in 1997. He managed to complete his Personnel and Training Management studies at the end of that year.

In 1998 he began training towards a Peace Officer certificate which I was told is a prerequisite for his job (see Appendix 5 for the requirement of a nature conservator or town ranger). He completed the Peace Officer course later that year. In an effort to fill up as many of the gaps in his fragmented past education and training, he registered for a computer course to improve his word processing skills. The course was to run over a two-week period with participants obtaining attendance or competency certificates.

At the time of writing up this study, Vumani is enrolled for an Environmental Education course offered by the Rhodes University Environmental Education Unit in Grahamstown. He claims his dream for better education is far from being fulfilled, the question though is whether the training courses that he undertakes offer a solution to his challenges.

In Chapter Six, the situation that Vumani finds himself in and the challenges he faces in equipping himself with the right kind of training will be discussed. The following section provides some information about his work area or community.

## **2.2. INFORMATION ABOUT THE CONTEXT**

### **2.2.1. General:**

The town is situated in the province of the Eastern Cape. It comprises mainly black and white people, with the former making up the bulk of the population. Until the elections in 1994, the administration of the town had hardly changed. For example, the previous Town Clerk, Senior Traffic Officer and the Post Master have been serving in the town for an average of 15 years each (interview with the New Town Clerk, Scoping Report, May 1999-not attached).

### **2.2.2. Politics:**

The national elections in 1994 and the subsequent local government elections in October of 1995 precipitated profound changes to the town. Both Vumani and the new Town Clerk are products of the post-1994 change era. These changes have undoubtedly disrupted previous primarily white dominated local government management structures.

Both Vumani and the Town Clerk provided examples of the challenges they face in elevating the developmental concerns of the township in particular to a focus of municipal business. They both noted the fact that the changing face of local government is not welcomed by everyone in town.

In an effort to transform the face of the town's administration, the Transitional Local Council froze vacant positions and instructed municipal managers to strictly observe equity laws when they recruit. The old 'bureaucrats' did not unquestioningly follow the council orders, I was, for example, told that the 'reverse racism' card was used to maintain the positions of some white employees. Thus it seems that racism is still a feature of the local government context in which Vumani works.

I also encountered reports that new (mainly black) recruits were subjected to open racism. In appendix 4.1.2, Vumani describes his experience with his white colleagues quite vividly. The new Town Clerk went as far as blaming the previous administration for failing to inculcate good working ethics in Vumani. Among other things, Vumani and other new black recruits were not allowed to use phones without getting clearance with the senior secretary/ administrator (who was white), regardless of whether a call was local or not, or central to fulfilling their official tasks.

### **2.2.3. Economic situation:**

The town relies on national government allocations for its operational budget that is made available through a regional district council. The funds from the national government are said to be inadequate. This has created a situation which requires the town to find alternative sources of income (see Acting Town Clerk interview, Appendix 4.1.4). The Acting Town Clerk says that property sales are the principal revenue generator, as the town tends to be attracting retirees and those seeking to build or buy holiday homes. This boom in the purchase of property is despite prices which even the administration reckons are high. High prices should not be confused with over value. In this case I was told that the environment/ surroundings of the town are the reason why such high prices can be fetched.

The dependence on a holiday time visitors, affects the local economy of the town. The private holiday homes are usually deserted during the year, affecting the regular flow of revenue during the year, making a seasonal economy. In addition, the houses provide easy target to thieves, as a result petty theft is said to be on the increase. It is not only the holiday homes that are looted though; the municipality seems to be giving its hand on looting pristine endemic vegetation.

The municipality have rezoned a protected area, and a piece of land adjacent to this area, for upmarket housing construction. This development has been allowed to proceed despite objections by the local Ratepayers Association.

During an off duty conversation, Vumani speculated that the person renting the land has started subdividing the land, as an overt display of his contempt towards the present government and the new local council.

#### **2.2.4 Tourism and Environment:**

The summer season brings both local and national tourists to this town. Its main attractions are its surroundings which offer both land and water recreational opportunities in the form of beach sports, leisure swimming, beach walks, surf, sunbathing and many other activities. The town boasts some of the most spectacular beaches in the country with natural pools and magnificent marine cut landforms. The relatively tranquil environment is sure to satisfy the needs of any discerning tourist.

In my observation, the natural environment is still in a relatively good state, except in developed residential areas, particularly the township. Along the coast, there are remains of indigenous dune vegetation and other endemic biome colonies such as the valley bush-thicket. In an effort to manage and conserve its local environment, positions of two nature conservation officers and two gardeners were created in the town administration. Vumani holds the rank of an Assistant Nature Conservator. In the next section I will be outline his training and other experiences relevant to the kind of work he is doing.

### **2.3. INFORMATION ABOUT THE JOB**

#### **2.3.1. Status within the institution:**

The positions Nature Conservator and Assistant Nature Conservator form part of the municipal foundational organogram. These are fixed positions within the local government employment structure. Due mainly to economic reasons, the town has been operating with the services of one conservation officer, mainly in the capacity of 'assistant'. On probing the reasons pertaining to the employment of only one officer in the assistant conservator post, and reasons as to why there has been no full-time or long time serving senior officer, it is claimed 'there is not enough work for two officers in the town' (Appendix 4.1.4, interview with Acting Town Clerk).

The Acting Town Clerk claims that the position of 'Assistant Conservator' was in the process of being removed from the municipal organogram, however the newly elected councillors did not want to have any of that. As stated earlier, they needed the position filled by a person from the previously disadvantaged group. Their wishes were granted with Vumani's employment, however no attempts were made to either remove the senior position or revise job descriptions. Vumani has therefore been deputising for three different Senior Conservators who between them served for no more than 18 months, over the past six years.

In an attempt to come to grips with the scope of his work, Vumani claims to have learned whatever little skills he could from each of the previous Senior Conservators. He had to perform well in order to earn the promotion that was promised to him by the new council and Town Clerk. This promise of a promotion, is yet to be fulfilled (at the time of the writing up of this study).

During my field visit the town had just advertised the position of the Senior Nature Conservator (see Appendix 4.1.3 for the advertisement). Vumani told me that he had 'reluctantly' applied for the position and was quite open about having given up the hope of ever being offered the senior position.

At the time of writing this study, three months had lapsed since the placement of the advertisement and at our last contact he had not been called for an interview. In the meantime Vumani is still expected to carry the duties of a Senior Nature Conservator as he has done over four years without formal recognition both in terms of a revised job description and remuneration or grading levels.

### **2.3.2. Identified roles and competencies:**

In the following table (Table 2.3.2) I summarise the environmental management roles played by Vumani (based on my observations and his job description (Appendix 4.1.1) as well as competencies seemingly required to fulfilling the roles. The roles and competencies listed in Table 2.3.2 are not matched with each other. I tried matching them but it appeared some roles had overlapping competencies and this would have resulted on overlap, repetition and long tables. The table therefore provides a list of identified roles and a list of the required competencies to carry out these roles. These roles and competencies are further discussed further in Chapter Six.

**Table 2.3.2: Environmental Management roles and competencies in a local government context**

Roles Played	Competencies Required
<ul style="list-style-type: none"> <li>• Acting senior nature conservator</li> <li>• Fire fighter, including directing fire-fighting team in all cases of fire</li> <li>• Law enforcement officer (conservation laws) e.g. preventing illegal fishing</li> <li>• Beach patrol, e.g. monitoring of fishing in municipal waters</li> <li>• Protecting and managing local environment</li> <li>• Liaison with tourism section regarding places to be marketed, e.g. updates information about town's attractions</li> <li>• Animal trap setter, e.g. catching wild cats</li> <li>• School excursions guide, e.g. accompanies on request those that are visiting his area.</li> <li>• Render support to all municipal departments</li> <li>• Interpreter, between senior official and general workers.</li> <li>• Drawing up divisional budget e.g. purchase list for tools</li> </ul>	<ul style="list-style-type: none"> <li>• Knowledge and interpretation of national, provincial and local by-laws relating to conservation, e.g. knows rights and regulations for each of the scenarios he deals with</li> <li>• Care skills for domestic and wild animals, e.g. know what to do when dealing with injured animals.</li> <li>• Knowledge about the sea, for example tidal movements, water temperatures and their consequences to aquatic life.</li> <li>• Knowledge of canine related diseases (especially when it comes to their ill treatment by the community)</li> <li>• Botanical and zoological knowledge</li> <li>• Mixing feeding rations for marine and terrestrial animals</li> <li>• Flora and fauna management skills, use of controlled burning</li> <li>• Knowledge of gardening tools and other machinery</li> <li>• General handyman skills</li> <li>• Ability to take stock and keep inventories of equipment issued to him</li> <li>• Proficiency in both English and Xhosa</li> <li>• Working with workers and other members of the public</li> <li>• Reinforcement skills (for workers who work well)</li> <li>• Diplomacy, e.g. handling of complaints</li> <li>• Investigation skills (poaching activities)</li> <li>• Level headed handling of irate residents</li> </ul>

<ul style="list-style-type: none"><li>• Liaison with media, occasionally sends stories or articles to media on conservation related issues</li><li>• Crisis (dispute) manager, e.g. when there are complaints</li><li>• Supervisor of general staff, e.g. takes control of general workers during execution of tasks</li><li>• Community liaison on conservation related issues, e.g. Environmental Clubs</li><li>• Equipment maintenance, e.g. ensures that all equipment used in the day is cleaned and properly stored</li><li>• Fleet management, e.g. monitoring of municipal fleet's activities.</li><li>• Reporting</li></ul>	<ul style="list-style-type: none"><li>• Ability to manage crisis and manage political tensions (unionised workforce)</li><li>• Ability to work in hostile environment (abusive/ racist)</li><li>• Ability to work with minimal or no supervision</li><li>• Knowledge of local people (knows every resident in town)</li><li>• Communication</li><li>• Interpersonal skills</li><li>• Knowledge of local environs</li><li>• Knowledge of the local history, information necessary for tourism information brochures</li><li>• Command of word processing programs, e.g. use of type writer</li><li>• Ability to write reports of acceptable standard</li><li>• Planning of routes and activities, for cleansing teams garden maintenance teams and others</li><li>• Ability to swim or stay in water for long hours</li><li>• Boat driving/ navigation skills</li><li>• Drafting of recommendations for considerations by the council and treasury division, for funding.</li><li>• Dealing with construction and earth moving companies operating in town</li></ul>
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## **3. THE NON GOVERNMENTAL ORGANISATION CASE STUDY**

### **3.1. INFORMATION ABOUT THE RESEARCH PARTICIPANT**

#### **3.1.1. General background:**

Zweli (not his real name) was born in one of the small towns of the Eastern Cape. He is active in his community through involvement in a number of youth development organisations and programmes/ activities. Being a disabled person, he has a keen interest in issues affecting the disabled. He has first-hand experience of hardships which confront the disabled in our society. Throughout his life he has struggled to make ends meet, his background is punctuated with experiences of abject poverty.

I found it remarkable that he has managed to gain and retain optimism whilst the degradation of both the environmental and the social fabric of society continue to confront him. His personal philosophy which allows him to 'see a glass as half full rather than half empty' has enabled him to pursue some of his personal development ambitions, in spite of testing conditions. He has been lucky in the sense that, the things he has set out to achieve have managed to end up the way he had envisaged them.

Zweli is highly regarded by his colleagues in the organisation, and much has been and is still being done to create a conducive working environment for him. The question is whether the approaches used to level the 'playing fields' are the best available to those who make decisions.

#### **3.1.2. Educational background:**

Zweli studied up to Grade 11 in his hometown. He could not complete his high school education due to increasing economic problems in his family. This deteriorating situation ultimately forced him to seek employment with an aim to supplement his family's meagre income which was mainly a government pension. It suffices to say that the situation did not deter him from his ambition of attaining a matric as he managed to complete it through a correspondence college.

Through his determination to learn and advance his knowledge, he studied towards a business and computer certificate at Access College with financial assistance from an organisation for the physically challenged. At the time of his college enrolment he says he wanted to do a motor mechanic course which he believed would have given him the autonomy he sought. The course was unfortunately fully booked and he therefore had to settle for a second choice.

His second choice was to upgrade his computer training qualification. He therefore studied towards a certificate in Computer Operations. Funds for the upgrading studies were made available by an institution known as the School Leavers Opportunities Training Centre.

Since joining his present organisation he has done a number of short courses in order to gain skills for various portfolios he occupied. He claims that his most valued qualification is the Tourism Guide licence, a certificate and training that is accredited by the National Tourism Board and therefore a recognition of his competence in conducting guided tours to national and international tourists visiting his hometown. His pride in the qualification was visible.

## **3.2. INFORMATION ABOUT THE CONTEXT**

### **3.2.1. General:**

Zweli's organisation was formed in the early 1990's, and is said to be focusing on teaching "the poor and unemployed people skills that will empower them to improve their quality of life" (Organisational Strategic Document, Undated). Its other purpose is said to be striving towards empowering people through practical general life skills and business acumen.

Among imparted skills are those of gardening and small business management. Recently, the organisation has expanded its services beyond the host town to other areas in the province. Its main area of activity remains around issues of gardening and training in various community development fields/ skills.

### **3.2.2. Politics:**

The organisation has survived a number of hardships since its formation. The democratic elections in the country changed the manner in which social and community development programmes were handled. Under the new government, the Reconstruction and Development Programme (RDP) Ministry controlled all community development funds. Funds from international donors previously received directly by NGO's during the period when SA was under sanction for apartheid were stopped or sent to the RDP Ministry. The onset of democracy and an elected legitimate government, with the associated re-channelling of funds for development, threatened the survival of many NGO's and other civil society groups.

NGO's had to forge ways of working more closely with government, but in many cases government had not yet established the systems to channel development funding to the NGO's. Only recently, since the establishment of the national lottery and the National Development Agency, are NGO's able to access funding through government channels. Zweli's NGO, like many other NGO's was faced with a funding crisis, after the 1994 government change.

Within the organisation, a major challenge remains empowering black members of its staff to assume 'meaningful' positions and/ or have some form authority. This process is currently being embarked on and Zweli is said to be one of those earmarked for a better position within the organisation. This move is in line with affirmative action requirements among institutions to demonstrate demographic representation (see Chapter Three on the Employment Equity Bill and its intentions).

A challenge to this organisation is to ensure that current junior managers will be capable of running the organisation when the senior white members leave or retire.

### **3.2.3. Economic situation:**

As stated earlier, before the 1994 elections in South Africa, NGO's played a strategic role as institutions suitable for channelling donor funds aimed at promoting development in various spheres of our society. The role played by these NGOs was fundamental in keeping the state of the many recipient areas from neglect and consequent collapse, as the country was reeling from sanctions and endless market challenges.

This NGO has done a lot to be able to thrive in today's environment. Not only have they found a way of working with government but they have also managed to successfully broaden their income generating activities, although the financial position of this NGO has been precarious at times.

Through training they have been able to perform various functions that ensure that they earn some revenue, for example they provide catering services to tourists and groups in town. In general, they have emerged out of the hardships as an adaptive institution. One of the strategies they employ to save costs, is to gain the services of community development 'volunteers' from other countries, to assist with the capacity building in the institution. These volunteers are paid a small retainer, and offer their services to the community through the NGO.

I identified three major 'trump' cards in use by this organisation viz. training, tour guiding (including catering) and permaculture. It remains to be determined whether economic pressures necessitated a major departure from its mission, possibly to the detriment of the community it claims it "is striving to serve". Another challenge is whether the workers will be able to adapt to the changes that constantly confront the development sphere in which this organisation operates.

### **3.3. INFORMATION ABOUT THE JOB**

#### **3.3.1. Status within the organisation:**

Zweli has been with this organisation for more than five years and has gained valuable skills in that time enabling him to rise in the ranks from being a messenger when he first joined to being a specialist for one of the institutions' units. In order to do justice to his case and situation I must elaborate briefly on what he did when he first joined the organisation.

His first position in the organisation was that of a messenger and typist, putting to use skills he acquired whilst working as Clerk/ Translator for the Society for the Handicapped. He took the opportunity to demonstrate that he can do more whilst performing the duties as required by his portfolio. It was that initiative that saw him being moved and given more fulfilling and challenging work as Training Facilitator. The position of a 'Food Garden Specialist' that he currently holds is crucial to the organisation, as training in permaculture-based food gardening is one of the NGO's current financial draw cards. In an area where school property is vandalised on a daily basis and consequently millions of Rands being lost, school-based programmes such as these are seen as possible answers to the tide of vandalism and neglect of communal infrastructure.

The programme involves working on food gardens with willing schools over an agreed period of time not exceeding two years. As month/s progress, Zweli's role and the support of his organisation becomes less. In this way, it is aimed for the school to take full ownership of the project including and so doing, ensure its sustainability.

Zweli's NGO has secured the services of a 'volunteer' Permaculture Specialist. He was appointed by the organisation to develop the schools programme, and provide a skills transfer programme in which Zweli would be assisted to develop the skills needed to manage and extend the programme, with a view to taking it over as his main function in the organisation. At the time that the fieldwork was undertaken, the programme was in its early stages, but already there was evidence of good working relations between the two, something that augers well for a skills transfer programme.

The 'specialist' was pleased with the leverage they have on carrying out this programme from the NGO management. This, he claims, allows them the necessary flexibility, something that is important given that it these are new and very important services to be offered by this NGO (NGO Day Two Field notes, March 1999-not attached). Zweli and the permaculture specialist provide support services to schools to run the above-mentioned programme. During my field visits, I was able to establish the roles and competencies of Zweli's task in the organisation.

### 3.3.2 Identified roles and competencies

As noted above, Zweli's job involves a number of environmental management tasks, particularly as these relate to food gardening, and supporting schools and community members to manage these gardens, and their school grounds.

The following table (Table 3.3.2) presents the roles and competencies that have been identified in this case. Roles and competencies that have been identified for this case are discussed at length in Chapter Six. Like the previous table, these roles and competencies have not been matched, but are merely listed to provide a broad 'picture' of the roles and competencies in the non-government organisational context.

**Table 3.3.2: Roles and competencies identified in the case study in the non-governmental context**

<b>ROLES PLAYED</b>	<b>COMPETENCIES REQUIRED</b>
<ul style="list-style-type: none"> <li>• Community representative for the organisation in meetings related to his organisation's work</li> <li>• Interpreter, e.g. during meetings</li> <li>• Communicator (staff and general workers or volunteers)</li> <li>• Introducer of permaculture to local schools.</li> <li>• Facilitator of workshops and school visits on permaculture, e.g. introducing and controlling training activities</li> <li>• Lesson designer</li> <li>• Materials planner, e.g. materials that would make grasp of permaculture easy</li> <li>• Activity planner, e.g. for schools including homework after visits</li> <li>• Food garden specialist, e.g. offer specialist advice about organic farming</li> <li>• Trainer, e.g. small business management training</li> <li>• Monitor progress in school and community gardens</li> <li>• Recruitment of volunteers</li> <li>• Team worker, e.g. with his mentor and the rest of the staff</li> <li>• Co drawing of unit budget</li> <li>• Proposal writer, e.g. internal funding proposals for unit project or requirements</li> <li>• Supervisor of general staff, e.g. supervision of nursery staff and volunteers</li> <li>• Nursery equipment maintainer and stock taker</li> <li>• Ecological impact assessor, e.g. organic v/s inorganic fertilisers, conducting experiments for demonstrations.</li> <li>• Purchasing officer for the training centre and nursery</li> </ul>	<ul style="list-style-type: none"> <li>• Competence in communication</li> <li>• Community liaison</li> <li>• Intimate knowledge of community enabling him to conduct local tours</li> <li>• Knowledge of developmental policies</li> <li>• Writing of in-house reports</li> <li>• Word processing</li> <li>• Project costing</li> <li>• Working with teachers</li> <li>• Working with school children</li> <li>• Selection and development of adaptive learning materials</li> <li>• Some knowledge of those school subjects that could benefit from the programme (curriculum)</li> <li>• Knowledge of school governing policies</li> <li>• Team building skills</li> <li>• Worker reinforcement and appraisal</li> <li>• Understanding staff and volunteer worker's training needs</li> <li>• Knowledge of permaculture principles.</li> <li>• Knowledge of planting seasons</li> <li>• Knowledge of plant nutrient requirement</li> </ul>

- Small-scale policy advisor and planner, e.g. organisational operational policy and plans i.e. where to work
- Social impact assessor, impact of project activities in recipient areas
- Tourist guide, e.g. guiding local tours
- Evaluator, e.g. evaluating overall function of his control area and the role that area of activity is playing in the overall success or failure of the organisation

- Knowledge of soils
- Knowledge of health and nutrition issues
- General management
- Conducting evaluations
- Knowledge of market forces on micro scale, e.g. the information he gathers in order to keep abreast with examples/ scenarios for his business management course.
- Business management
- Setting of targets
- Train the trainer competence

## **4. THE INDUSTRY CASE STUDY**

### **4.1. INFORMATION ABOUT THE RESEARCH PARTICIPANT**

#### **4.1.1. General background:**

Dinga (not his real name) was born in Pietermaritzburg in the province of kwaZulu-Natal. He later moved to Durban to further his education. He is a trained and qualified technician, a qualification that earned him a job with his present company. His work moved him from Durban to Port Elizabeth where he has been working for the same company for nearly ten years. Based on my observations, he is a very focused person who knows the ins and outs of his job. He is in control of activities in his unit, which deals with construction.

The dedication he has to his work has made him move ranks at an above average pace and it seems he is not done yet. Judging by the awards he has been receiving for outstanding work, he is not a token appointment, even if his mobility has been enhanced with affirmative action. He leads a very busy working life. Fortunately for him, he has other people (friends) with whom he can share his frustrations and since they are all working for the same company it seems they look after one another.

To do his work the best way he can does not seem to be the only driving force for him, the quest for better education seems to be playing a significant role. In a country where skilled and competent black people are in short supply, Dinga seems to have realised that furthering his education will develop him professionally and personally, improve his work performance and unlock promotion doors for him.

#### **4.1.2. Educational background:**

Dinga completed his matric in Durban after which he enrolled for a technical diploma in civil engineering. At the time of his diploma studies he held the job of a foreman in this company. The company has an induction course which he also attended when he first joined. This course is aimed at orienting new employees to company policy and line function duties.

Upon completion of his technical diploma, Dinga was then given more responsibility in line with the duties of a production manager. He was in charge of construction gangs that were laying network lines. Since becoming a field manager, the company allowed him to enrol in an in-house production management course. The production management course and the experience he had gained over the years enabled him to move up another level.

When the position of an Operations Head became vacant in the Southern Region of the Eastern Cape, he successfully applied for it and moved to PE. Having realised that his technical competence was intact he decided to broaden his chances of promotion in the company by enrolling in a course that would boost his business acumen. He is now studying towards an MBA degree through correspondence at an international institution.

## **4.2. INFORMATION ABOUT THE CONTEXT**

### **4.2.1. General:**

The industry in which this case was conducted is one of the biggest in the country and boasts more than fifty thousand employees. For years, the services rendered by this company and the company itself were the responsibility of government. With the current national drive for privatisation of 'parastatals' this company has also been earmarked for privatisation. It is a national company and has operation offices in just about every town in the country.

### **4.2.2. Politics:**

South Africa is a country in evolution, with the rejoining of the international community; industries have had to face up to many challenges. These challenges range from compliance with national legislation on production procedures to equity, diminishing protection regulations and realising economies of scale. Since the days of heavy government incentives are over, the situation demands of industry to find its feet more quickly than it would have if those incentives were never offered in the first place.

Throughout the country and in the Eastern Cape in particular, where there have been homelands, over employment characterised the civil service. As a result, this problem remains a challenge after the integration of these homeland bodies into provincial services. Dinga's company also experiences problems of "extra-numeraries" (Day Two Field notes, May 1999-not attached).

Over the years this company has offered its 'excess' employees packages for either early retirement or for voluntary severance. Competition from abroad has been taking the best of its technicians; most of these have gone to mobile communication firms. Positions that have been left vacant through the above procedures are immediately made redundant and therefore not filled, increasing the burden of the remaining workers. Most of the work is out-sourced to private specialist companies following guidelines that seek to give business to previously disadvantaged people. With government still the majority shareholder, this company will still be expected to perform its services in the interests of the 'public good'.

The government has already taken important steps towards the privatisation of this company. In order to assist the company to come to terms with the competitive world, a 'strategic' external partner has been sourced. It is said that the agreement is that the partner will "own no more than 20%" of shares over a specified period. These requirements were all met. I was surprised to learn from speaking to Dinga and the Environmental Management Systems (EMS) course facilitator that the strategic partner has single-handedly pushed for environmentally responsible production and reporting, something demanded and obtained despite its share size (Day Two Field Notes, May 1999 also EMS Course notes, August 1999-).

#### **4.2.3. Environmental Management:**

In developing its environmental management plan, Dinga's company attempted to take into account both national and international regulations. Numerous guidelines dealing with various line functions are incorporated in the management plan, with ISO 14001 serving as an anchor or backdrop for international compliance. A series of guiding documents, video and work instruction sheets have been developed based on the findings and recommendations of a consultant commissioned to conduct assessment studies.

These studies were to identify and evaluate all areas where this company's operations impacted on the environment and make recommendations for remedial and impact minimisation strategies (Course Facilitator, pers.comm., September 1999). The EMS Training Courseware (1999: 8) states that EMS is introduced for the following reasons (amongst others):

- *Compliance with legislation to prevent legal action*
- *Promote acceptance in local and overseas markets, so that local and overseas companies will want to invest in the organisation.*
- *Reduce costs by reducing resource usage and waste generation*
- *That it is a right thing to do*

I must mention that, despite all these reasons, introduction of environmental management is not readily accepted among certain line functions. In fact, senior management itself does not seem too excited about it, judging by lack of purposive intervention and proper realignment of functions (see Dinga's job description or task sheet, Appendix 4.3.1). The fate of responsible environment management, as in this case, relies heavily on support from senior management (see Chapter Six for further discussion on this point). The management has decided to out-source most of this work in this area as it is said not to fall within the business's core functions (Day Two Field Notes, August 1999).

This company has, however, elected to train identified Site Responsible Persons (SRP's) as "environmental managers". SRP's are people that have been earmarked and trained for seeing to the fact that Environmental Management System (EMS) training is administered to all line functions in a site and that environmental reporting is taking place through the daily completion of work instruction sheets.

These people are expected to, over and above their normal duties, make sure that each site or area of project operation and all associated functions comply with the company's EMS standards. Dinga is among those people that have been earmarked for this newly created function and thus his inclusion in this study.

#### **4.2.4. Economic situation:**

This institution has adequate resources for its functions. Being the sole providers of a particular service in the country, it seems to be thriving. Working closely with the relevant Ministry also brings more business for them. The challenges it faces, according to my observations, are those associated with "earning foreign revenue", successful EMS implementation [to the satisfaction of Strategic Partners], dealing with supernumeraries and maintaining a reasonable share of the market once the remaining regulations are relaxed.

To my mind, environmentally responsible operations are not supposed to be dependent on whether they are of immediate financial benefit or not. The introduction of new technology services in their market might also see the company struggling to find and keep customers. It seems that most resources and energy are spent in trying to keep up with technological developments through its 'home-grown' innovations, as it gears up to compete with the international giants operating in its niche. There is hope that environmental management will be taken seriously, since this company is now bidding for international tenders.

### **4.3. INFORMATION ABOUT THE JOB**

#### **4.3.1. Status within the institution:**

As Head of Network Operations in the region, Dinga is at the heart of his company's delivery line in the region and the province. His jurisdiction starting from Qumbu to PE encompasses the former homelands of Ciskei and Transkei, areas which represent opportunities for expansion to the company.

Dinga and his gang commence with their work after needs assessment and economic feasibility studies are complete and justify a need for the provision of a network. Dinga then formulates a business plan with all the required indicators including the amount of money required to complete the job. Funds are made available project by project instead of an annual budget (Day Two Field Notes, May 1999).

Since network provision and construction in particular seems to be the hub of environmental related activities, most SRP's are drawn from this division. It was not easy to keep up with Dinga during my two days of fieldwork since at times he had to attend some closed internal meetings.

Dinga had a more 'hectic' schedule than any of my other participants. At the times I was with him he was mainly dealing with his line function related communications most of which appeared crisis-like. He was calling some contracting firms who were apparently overshooting their deadlines, something that was interfering with timeliness of his reporting and project completion. He also had to deal with other management issues such as dealing with his company based workers and the use of vehicles, and the establishment of priority sites for the day.

### **4.3.2 Roles and competencies**

As noted above, Dinga clearly had environmental management responsibilities in the company, as well as other management related responsibilities. More information about his role became available when I attended the EMS induction training in his company, and from scrutinising his detailed job description (see Appendix 4.3.1 for an extract of his job description).

Even though Dinga was not present on the course I attended, roles of SRP's are uniform and were clearly spelled out in documents provided. Dinga was said to have been scheduled for a later course, and again the reason being pressing issues in his line function that he had to sort out. The following section (Table 4.3.2.) presents roles and competencies that have been deduced from observing Dinga, and from the available documentation, and contextual information I was able to obtain (e.g. the EMS training programme). Like in the previous two case studies, the roles and competencies have not been 'matched' up, but are presented in a way that provides a broad 'picture' of roles and competencies of entry-level environmental managers.

**Table 4.3.2: Roles and competencies identified in the industry case study**

ROLES	COMPETENCIES
<ul style="list-style-type: none"> <li>• Line function communicator, presenting work plans to gatherings of junior managers within his line function</li> <li>• Decision maker concerning operations in his jurisdiction</li> <li>• Project planner</li> <li>• Compiler of line business plans</li> <li>• Strategist, e.g. giving advice to company and junior managers on operations</li> <li>• Consultant, his institution regards employees from the level of a junior manager up to be a consultant/ expert in their field</li> <li>• Disciplinarian, e.g. meting out penalties to those who fail to abide by rules in his division</li> <li>• Crisis manager, e.g. handling of all abnormal instances in his line</li> <li>• Staff developer, e.g. timeous staff update meetings and conducting induction workshops</li> <li>• Performance standards setting, e.g. setting targets for both contractors and internal teams</li> <li>• Technician, e.g. civil engineer by trade</li> <li>• Task assessor, a necessity before budgeting for projects</li> <li>• Quality controller by ensuring that all project are of institutional acceptable standard</li> </ul>	<ul style="list-style-type: none"> <li>• General management</li> <li>• People management</li> <li>• Leading a team</li> <li>• Word processing</li> <li>• Workshop facilitation</li> <li>• Work or staff appraisal</li> <li>• Diplomatic skills</li> <li>• Communication on line specific issues</li> <li>• Crisis management skills</li> <li>• Knowledge of company policy</li> <li>• Interpret company policy and documentation, a requirement by his job description</li> <li>• Financial management</li> <li>• Budgeting</li> <li>• Quantification of tasks</li> <li>• Engineering related work skills</li> <li>• Knowledge of general construction specification</li> <li>• Understanding ecological principles</li> </ul>

- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>• Logistics planner, in tandem with other line personnel and operational teams see to it that work is done at minimal cost</li><li>• Cost analysis specialist, i.e. has to thoroughly scrutinise project proposals for over or under budgeting possibilities then if proper defend it from senior managers</li><li>• Ecological impact assessor, i.e. to be phased in with the introduction of EMS, planning for potential environmental damages</li><li>• Submission of update and project completion reports</li><li>• EMS site responsible person, e.g. ensuring adherence to stipulated environmental performance standards by all divisions operating in his site</li><li>• Link with the head office, i.e. reports to the head office, serving as a link therefore between the regional general managers and his subordinates</li><li>• Contribute to transformation in the company through outsourcing of activities to contractors from a disadvantaged economic background</li></ul> | <ul style="list-style-type: none"><li>• Knowledge of company environmental performance standards.</li></ul> |
|---|---|



## 5. SUMMARY

Chapter Four has presented the findings of the case studies using standardised organising categories relating to a participant's work context, educational background and information about their jobs. In each case, the findings indicated that employing institutions required different competencies associated with what can broadly be described as the participants 'environmental management' roles, as viewed by their employing institutions, and as observed in the different contexts. The roles and competencies that were observed for each of these three cases were presented but not discussed, the latter being an exercise left for Chapter Six.

The three case studies were selected according to the different contexts, and research participants were selected for their role in contributing to environmental management in these contexts. The roles played by these 'environmental managers' in their various institutions, and the identification of roles and competencies associated with an entry-level environmental management function in different organisations, is discussed in more detail in Chapter Six.

Thus far, I have reported on the case study data. It provides some insight into the roles and competencies that would need to be considered in the development of qualifications to suit these and other entry level 'environmental managers' in similar positions (see Chapter Seven). In Chapter Six I synthesise the case study data further, to identify generic roles and competencies (see Table 6, Chapter Six), which can be used as a broad basis upon which a qualification for learners at this level can be built.

In the next chapter, I present the survey data on courses and qualifications currently offered in the field of environmental management in South Africa, in order to present a broader picture of issues associated with qualifications development for entry-level environmental managers. These survey findings provide insight into relevant training programmes particularly, whether these training programmes are appropriate to the level at which Environmental Managers such as the participants in the case studies, study and work.

## **CHAPTER FIVE: SURVEY RESULTS**

### **1. INTRODUCTION**

In this chapter I will be presenting the second part of this study, being the results of a national survey on courses and qualifications currently offered in the field of environmental management in South Africa. The need for a national survey was incorporated as one of the study aims, to identify training opportunities available to environmental managers. In Chapter Two, the kind of survey and tools that were used were presented.

The survey findings provide a broad picture of the South African environmental management training landscape. The survey results demonstrate that certain areas of environmental management training appear to be receiving more attention than others. One of the apparent trends appears to be the fact that technical competence is given greater preference than those areas that deal with the social component or issues (even where courses cover both areas, there appears to be a greater technical focus). This focus on technical issues, is not in line with the actual job demands placed on environmental management practitioners today, who as we have seen in Chapter Four, are required to deal with a lot with the social dimensions of environmental management. Chapter Six advances this argument and the discussions indicate how such a discrepancy can be dealt with.

In this chapter, I present the different findings of the survey, using tables accompanied by brief explanatory notes. I present the more general findings that emanated from this survey to serve as a backdrop for the subsequent detailed discussion on the case study findings in Chapter Six, as these pertain to entry-level environmental management training.

### **2. BACKGROUND AND OVERVIEW OF THE SURVEY RESULTS**

A questionnaire was sent out to 24 training institutions nationally. Of these 24 institutions, 19 replied, constituting more than a 75% response rate. Most of the institutions that replied were mainly institutions of higher learning, i.e. universities and technikons. In fact, universities and technikons appear to be dominating training provision in the environmental management field. They make up more than 80% of the training providers registered with the national Department of Environmental Affairs and Tourism, from whom the list/ provider's database was obtained.

In addition to the survey questionnaires sent to the providers, I also incorporated data from advertised courses. This data was obtained from colleagues in the Environmental Education Unit. Information sourced in this form gave me an additional 9 training providers, raising the list of surveyed institutions to 33. All but two of the providers of training in the field of environmental management were formal academic institutions, or some semi-autonomous institutions attached to departments that offer training and services in the environmental, earth, biochemical and other sciences.

Bearing in mind that my study was focused on training for entry-level environmental managers, I had a particular interest in trying to establish what training opportunities were available to this group. As illustrated in the three case studies in Chapter Four, my interest was in investigating training issues pertinent to people involved directly in dealing with environmental management on the ground, and people who are relatively 'new' to the field of environmental management. These are the people who are likely to have an interest in 'entry level' environmental management training. By referring to 'entry level' environmental management, I thus refer to that level in a management hierarchy where managers deal directly with environment. I first present a summary of the survey findings, and then discuss them in more detail, with a view to providing a backdrop to the discussion in Chapters Six and Seven.

Table 5.1 below provides a summarised overview of the survey findings.

**TABLE 5.1: Summary of Survey Findings.**

<b>Institutions Surveyed (33)</b>	<b>Number of Courses and Qualifications Offered</b>		
<b>Accreditation</b>	Accredited: <b>(11)</b>		Not Accredited: <b>(14)</b>
<b>Providers</b>	Universities: <b>(8)</b>	Technikons: <b>(4)</b>	Other: <b>(2)</b>
<b>Duration</b>	Short: <b>(13)</b> (Less than a month)	One to Two Years: <b>(4)</b>	More than Two Years: <b>(8)</b>
<b>Focus of Topic</b>	Technical Aspects of Environment: <b>(9)</b>	Social Aspects of Environment: <b>(3)</b>	Both Technical and Social Aspects of Environment: <b>(13)</b>

### **3. BREAKDOWN OF SURVEY FINDINGS**

#### **3.1. TRAINING OPPORTUNITIES AT CERTIFICATE LEVEL**

Table 5.2 below contains an overview of the different environmental management certificate courses. Most are offered as short courses. These courses appear to be popular judging by the fact that all training institutions render them. For instance, more than 90% of institutions that responded to the survey indicated to be providing an average of two short courses covering one or two of the topics in the table.

These courses tend to be designed as 'stand-alone' courses or they form part of a series of modules, usually for graduate level studies. They are offered as short courses to those who need to master skills covered by the topic or theme of the course. In this study, a short course refers to courses that are offered over a period not exceeding two weeks.

It appears from Table 5.2 that there is no certificate course that has been registered for NQF credits or towards an accredited qualification. For a course to be certified according to the NQF, the provider needs to be a registered provider, and the course needs to be offered according to a particular unit standard framework. At the time of this study, these standards were not in existence, and none of these courses were NQF certified, hence this research to inform the development of standards.

Should relevant unit standards be available on the NQF, most of these courses could be certified on the NQF, judging by the level of their content. In the absence of these unit standards, it was difficult to establish at what level these short courses might be registered on the NQF, as they are at present 'open' to most practitioners. I have therefore indicated that they might be accredited at levels 5-7 on the NQF. When these courses form part of graduate training studies they are assigned credits and at the end, a qualification is accredited.

As can be seen by the overview in the table below, most of these short courses are predominantly focused towards technical competence and/or technical dimensions of environment management, e.g. environment management standards, systems, auditing and pollution control. The course curricula are still biased towards traditional and technical issues of environmental management, with the exception of two courses which deal with a broad overview of environmental management and facilitation of social involvement. Even in the cases where both technical and social dimensions were included in the programmes, it appears that the technical dimension was still emphasised more than the social. This trend will be discussed in more detail in Chapter Six.

**Table 5.2: Short courses and certificates**

<b>COURSE</b>	<b>QUALIFICATION</b>	<b>NQF CREDIT?</b>	<b>LIKELY NQF LEVEL</b>	<b>PROVIDER</b>
General Environmental Awareness	None	No	5-7	Private institutions
Environmental Impact Assessment	Attendance certificate	No	5-7	Consulting firms and Universities
Safety and Health Management	Attendance certificate	No	5-7	Universities
Environmental management standards	Attendance certificate	No	5-7	Universities
Introduction to environmental management	Attendance certificate	No	5-7	Universities
Environmental management systems	Attendance certificate	No	5-7	Universities
Pollution and waste management	Attendance certificate	No	5-7	Universities
Environmental health	Attendance certificate	No	5-7	Universities
Public involvement and facilitation	Attendance certificate	No	5-7	Universities
Environmental law	Attendance certificate	No	5-7	Universities
Waste management	Attendance certificate	No	5-7	Universities
Environmental auditing	Attendance certificate	No	5-7	Universities
Ecological management	Attendance certificate	No	5-7	Universities

### 3.2. TRAINING OPPORTUNITIES AT DIPLOMA LEVEL

A slight yet profound contrast between the diploma courses and the short courses is the effort and progress made towards registration for accreditation of courses and qualifications. The only unregistered course at diploma level was said to be in the process of being registered at the time of writing this study, see Table 5.3 below. This is probably due to the fact that diploma courses were recognised in the previous qualifications framework, while short courses were not.

**TABLE 5.3: Diploma’s including an Environmental Management focus**

COURSE	QUALIFICATION	NQF CREDIT?	NQF LEVEL AT WHICH REGISTERED	PROVIDER
Civil engineering	National diploma	No	5	Technikon
Environmental health	Diploma	Yes	5	Technikon
Environmental management	B Tech diploma	Yes	6	Technikon
Environmental health	M Tech diploma	Yes	7	Technikon

Technikon’s appear to be offering environmental management training for level 5-7, and are currently ensuring that these courses are registered on the NQF. At the moment, most of their training is provided at Diploma level. It seems that technikons are therefore potential providers of entry-level qualifications, and based on the NQF levels (see Chapter Three), technikons may well be able to offer a National Certificate in Environmental Management at Level 5, as entry-level qualification to the Level 6 B.Tech Diploma in Environmental Management. This research may well be able to inform the development of such a qualification.

### 3.3. ENVIRONMENTAL MANAGEMENT TRAINING OPPORTUNITIES AT GRADUATE LEVEL.

The modules for graduate and postgraduate courses are often rendered as short courses. As I pointed out earlier under the section dealing with short courses currently provided, these modules have no credits outside their graduate training programmes. Graduate courses tend to deal with more than a single issue, for example environment and law, with the key emphasis being on learning about legislation dealing with environment. In essence they render training to those who will be specialists in that field, offering a unique specialist qualification. For an example, graduate courses could be on environment and economy, environmental journalism, environment and society, environment and politics, etc, see table 5.4 below.

One of the reasons for bringing an environmental focus to such fields as economics, law, politics, journalism, illustrates the point that environmental issues are diverse, and require diverse solutions. In Chapter Three (3.1) I mentioned and supported the point about transformation in the field of environmental learning, illustrating that environment is increasingly a cross-field issue, requiring broad-ranging training that does not separate environment from the social, political, economic spheres. This is reflected in the differing foci of environmental management training programmes in Table 5.4.

**TABLE 5.4: ENVIRONMENTAL MANAGEMENT RELATED DEGREES**

<b>COURSE</b>	<b>QUALIFICATION</b>	<b>NQF CREDIT?</b>	<b>LEVEL AT WHICH REGISTERED</b>	<b>PROVIDER</b>
Environmental health	Hons. Degree	Yes	7	Universities
Environmental politics and diplomacy	MA Degree	Yes	6	Universities
Environment and society	MA Degree	Yes	6	Universities
Environmental business management	MBA Degree	Yes	7	Universities
Environmental ecology	MSc. Degree	Yes	6	Universities
Environmental economics	MSc. Degree	Yes	6	Universities
Water resource management	MSc. Degree	Yes	6	Universities
Environmental law	LLM Degree	Yes	7	Universities

As Chapter Three revealed, environment as a field is transforming, necessitating new and insightful ideas. The relatively new demands of this field could be the cause for the demand for short courses. The question which needs a thorough analysis though is, does training that is currently on offer provide adequate background for newcomers in the field (see Appendix 5 for detailed information about the courses). Will the kind of training on offer assist in achieving national transformational goals in general and in the field of environmental management in particular? These and other questions will be discussed in Chapter Six.

## 5. SUMMARY

This chapter presented a broad overview of the findings of a national survey which was conducted in order to gain insight into the available training opportunities in the field of environmental management. The survey identified three broad categories of courses, viz. Certificate, Diplomas and Graduate courses.

The chapter begins with a brief explanation and provides an overview of the findings in a table (Table 5.1). The courses that have been identified by the survey are also presented under the above-mentioned organising categories, summarising the courses, associated qualifications, accreditation status on the NQF and providers (according to major provider groups) – see Table 5.2, 5.3 and 5.4. Details are captured and attached in an appendix (Appendix 5) as part of this study. A brief explanation was also provided for each of the tables or categories.

A quantitative summary of findings was provided at the start of the chapter (Table 5.1), to give readers an overview and a sense of the main trends, i.e. that most environmental management courses offered are shorter than one month; most of these are not accredited; the universities provide by far the majority of these courses. Most of the courses are focussed on technical aspects of environmental management, and in some cases focus only on the social aspect. In those cases where training is focussed on both technical and social aspects, the technical aspects continue to dominate. The findings in Chapter Four suggest that there is a need for training which covers both technical and social aspects equally.

In the following chapter, the implications arising from the findings of both the survey and the case findings will be discussed. The detailed information in Appendix 5 will once again be useful for the next chapter. I will now discuss the findings in relation to the goals of the study as stated in Chapter One.

## **CHAPTER SIX: DISCUSSION OF FINDINGS**

### **1. ORIENTATION TO THE CHAPTER**

This chapter discusses issues relating to roles, competencies, training and qualifications in the field of environmental management as elicited by the survey and case studies. First to be discussed is the context within which environmental management and training takes place in the three case studies covered in this study. Secondly, I will focus on the roles played by the studied environmental managers in their various institutions and the competencies that they seem to require in fulfilling their environmental management roles. Finally, I will discuss current entry-level training opportunities available in South Africa for the field of environmental management, as revealed by the survey. The latter section will offer a critique on whether these opportunities cater for the needs of entry-level managers, based on the case study outcomes.

The discussions in this chapter are located in the broader educational and social context of South Africa. Chapter Three provided insight into the transitional challenges associated with the reorienting of service provision, legislative reform and educational transformation in South Africa. Priorities in all sectors of government are aimed at redressing past discriminatory practices. As noted earlier, this is also a priority of the South African Qualifications Authority, which seeks to design new qualifications based on principles of equity and redress (see Chapter Three), hence the focus of this research.

The journey from segregation to integration is not without its set of challenges. These challenges range from agreement around strategies best suited for redressing specific apartheid effects such as educational inequality to general issues such as ways of integrating into the global economy. The scope of these challenges is, to a certain extent, evident in the case study data, as reported in Chapter Four. In this chapter, I have tried to ensure that the past experiences, the aspirations and current work realities, and challenges faced by the case participants is presented clearly.

Through the discussion on the context in which the case participants work, one will get to understand the roles the three case participants play, and the competencies they require for their work (as introduced in Chapter Four). This will provide further insight into training requirements for entry level environmental management practitioners, and a clearer insight into some of the contexts in which these practitioners work.

A dimension I would like to introduce in the process of discussing these findings is an apparent lack of clarity of what the field of environmental management involves, particularly by human resource management and development practitioners (as seen in case data in Chapter Four).

Since this apparent 'limited' understanding of what the field entails has bearing on the kind of training that is arranged, it is important to reflect on and challenge some of these views of environment including methods of managing it. While the study did not probe this point in great depth, it was an issue that arose in the analysis of the case data. This exercise will tie up the 'loose ends' in concluding the discussion of the findings. The following section deals with the context of environmental management as it was explored in this study.

## **2. THE CONTEXT OF ENVIRONMENTAL MANAGEMENT AS EXPLORED IN THIS STUDY**

### **2.1. VIEWS OF ENVIRONMENT, AS EVIDENT AMONG PARTICIPANT INSTITUTIONS**

At this point in the study, it seems appropriate to briefly present the manner in which the studied institutions view the 'environment'. In Chapter Four, I provided information on the 'environment' in which the case participants were operating – namely the economic, social, political, etc, which gave insight into the conditions within which the case participants, and their institutions operate. I will now focus my discussion on the institutional views on 'environment', as evident among the employers of the three case participants. Some of these perspectives have been introduced in Chapter Four, but will be expanded here. I see the institutional perspectives on environment as having an important bearing on their interpretation of environmental management, and thus also the capacity building and training of their employees.

**Local government:** When I discussed environmental management issues with the Acting Town Clerk, it seems that establishment of an holistic environmental management plan is hampered by the argument that the municipality has a relatively small amount of land at its disposal, and that this does not warrant comprehensive by-laws to establish an effective and holistic environmental management plan. The Acting Town Clerk explained that, with the exception of a 'small' commonage (which includes the local nature reserve) most of the surrounding belongs to government (see Appendix 4.1.4, interview with Acting Town Clerk).

Senior management in the municipality appears to advance this argument as a means of justifying what can be described as a 'lax attitude' in dealing with the housing development underway along the beachfront, which is currently encroaching on the reserve, and threatening important vegetation.

Current exploitation of this particular area, does not mean that there are no efforts to manage other areas, for example, town gardens are regularly maintained, fire-belts are regularly checked and renewed and many other activities concerning environment management are undertaken. It seems that economic developments have greater priority over environmental management practices.

This presents as a short-term view, as uncontrolled developments along the beachfront may later affect the attractiveness of the town to its seasonal visitors who might find that overbuilding will restrict the amount of space available for recreation. This may, in turn, affect the town coffers and a domino effect may ensue spreading onto availability of revenue for other upkeep services.

From the above, it appears therefore as if the municipality holds a fairly restrictive notion of 'environment', as being limited to vegetation and water bodies and their management, and in this case, it seems that the management of the vegetation is selective, depending on economic incentives and benefits. This is contradictory to the perspectives on environmental management reflected by National Policy in the National Environmental Management Act.

Senior management in the municipality appears to think that exploitation of the biophysical environment for meeting economic and general development needs of the town is a justifiable act. Therefore, it is expected, as presented in Chapter Four, that Vumani's energies will be focussed in conserving or managing resources and activities that have potential to provide a source of revenue for the town.

**Non-governmental Organisation:** The NGO in the case study, like most in the country, is confronted daily with the issue of how and where to access funds. The organisation therefore has to market itself and in the case the NGO in the study, it appears that the services that this organisation provides are packaged to place it in a good position to draw funds. The kind of work that they do, especially Zweli's programme, brings to life a new dimension on food production.

The low-tech, organic and self-sustaining permaculture method is currently a popular method of organic subsistence farming or food production. The focus on food production, and environmentally sound methods of food production, are packaged within a framework that aims to assist under-privileged communities to produce food, thus intending to provide poverty relief, providing the funding draw card required by the NGO in its community-development work.

The underlying principle of permaculture is to re-use organic material and certain waste products to enrich the soil, which acts as a source of nutrients for plants. Permaculture production also makes use of organic pest repellents, locally sourced timber for fencing and so on.

Permaculture in many ways contributes to conserving the local environment by reducing the impact of chemical induced production, while enabling the production of food in an affordable way. The benefits from this programme are not limited to the adopting community, but to neighbouring ones as well, through soil conservation, and so on.

The NGO therefore appears to have a perspective on environment which involves more sustainable methods of food production, involving improved environmental conservation, skills development and more sustainable living practices which are aimed at enhancing the quality of life of people.

Zweli's environmental management role is therefore shaped by the above noted institutional perspective on environment and his environmental management competencies are closely associated with the development and management of the permaculture programme (as illustrated in Chapter Four). He supports school children to manage their environment through the permaculture programme, and he makes available to them the knowledge and materials to carry out the task easily. His role is therefore to support learners to undertake permaculture gardening activities, to market the permaculture concept which involves advocacy for buy-in. He is also involved in ongoing planning, development and monitoring of the programme, all contributing to better environment management.

**Industry:** In the case of the Industry case study, their view of environment appears to be shaped by a number of factors. Being a communications company that operates nationally, this institution does not have 'rights' over the specific land regime they are working on. In the absence of such rights and obligations to particular tracts of land, the possibility exists that there may be problems associated with a shifting of responsibility for environmental impacts of activities undertaken on or near such land.

In the case of this industry then, it appears that environment and environmental responsibility is therefore not firmly linked to land management (as in the local government case) or production processes associated with specific tracts of land (as in the NGO case), but rather on managing of operations in a broader sense. In Dinga's industry, environmental management practices seemed to include recycling of products, fleet management, clearing of bush and better management of operations in the field (hence the selection of the SRP's to conduct the environmental management practices in the company).

However, in Dinga's industry, they claim to have other pressing or more 'important' challenges (core business), and they tend to see the issues relating to environmental management as less important than 'core business'. It appears that environment is seen as an 'add on', an 'extra' and an 'additional cost' (see section dealing with Industry case study in Chapter Four).

The imperative for sticking to 'core business' was partly the result of the company's restructuring strategy in preparation for privatisation. It seemed that this strategy was likely to result in a number of retrenchments.

One of the implications of this, is the fact that the company was planning to outsource certain functions in an effort to raise revenue. It appeared that many of the environmental management functions were to be outsourced, for example, recycling, fleet management, cleaning, bush clearing activities and many more. Revenue was to be raised through reducing labour costs and cost recovery from recycling.

Dinga's environmental management role was therefore affected by not only the company's perspective on environmental management (management of operations), but also by the outsourcing policy resulting from restructuring.

A further factor influencing Dinga's role as environmental manager, is the fact that the environmental management strategy for the company was only put in place with the insistence of the strategic partner (see Chapter Four for more information about this strategic partnership). Thus, environmental management in the company also appears to be somewhat of a 'marketing tool', targeted at courting international investment or revenue.

The forced adoption of this environment management plan, combined with the view of environmental management as being an 'add on', has resulted on it not being fully integrated into the company's general management strategy. The issue of SRP's selection to be environmental managers, demonstrates the lack of commitment from this company in devoting time and human resource to this activity.

From the training programme I observed, Dinga's environment management role will be further influenced by the outcomes of a computerised programme that compares a 'complex' series of variables to be used to upon deduce risk levels of operations (see EMS course notes, September 1999 not attached). We thus see that Dinga's environmental management role, is institutionally shaped by: the type of operations the company is involved in, how these operations are described in the company; as well as by the way in which the company views environmental management, and the priority given to this function in the company.

From the above discussion, it is clear that the institutional context, and the institutional view on environment has a strong role to play in shaping the roles of environmental managers. From the case study data, it appears that these roles are shaped by: 1) the view of environment held by the institution; 2) the priority ascribed to environmental issues and environmental management in the institution; 3) the nature of the institutions business; and 4) economic priorities and constraints. In the next section I discuss the roles of the environmental management practitioners in more detail.

## 2.2. ENVIRONMENTAL MANAGEMENT ROLE AS DEMONSTRATED IN THE THREE STUDIED CONTEXTS

Having presented briefly how institutions at which these practitioners work view 'environment' and the associated level of priority afforded environmental management, I now focus on the implementation of practical management plans through a closer look at the roles and competencies of the environmental management practitioners in each case.

In the following section, I do not by any means seek to critique the manner in which these institutions are succeeding or failing in their efforts to manage the environment. Rather, I present selected case specific examples relating to environmental management, demonstrated competencies and how these contribute to the implementation of environmental management, as explored by this study.

As indicated in Chapter Four and Five, the recent evolution of the field of environmental management presents practitioners with many challenges. I found it encouraging that environmental management practitioners in the case studies, are not overwhelmed with these rapid changes facing them in both their personal and professional lives, but are constantly adjusting and fine tuning their practices to fit with the times and demands. For instance, all three of the case participants in the study, appeared to be generally confident about how they perform the tasks they were involved in. In the next section I will present and discuss the day to day work of these practitioners.

**Local government:** As indicated in Chapter Four, Vumani is employed as a nature conservator charged with the management and conservation of natural resources in his municipal area. Under general circumstances, his job would be understood as involving primarily the conservation of local natural resources.

His job, for example would have involved working intimately with wild animals and endemic flora, marine mammals, and all that is natural and worthy of conservation. This view emanates from the way in which his field has developed in apartheid South Africa. In recent years, conservation and natural resource management have become complementary skills, both associated with the role of 'nature conservator'.

Traditionally, nature conservation has been deeply rooted in protectionist approaches to environmental management, focussing mainly on the conservation and management of natural resources, which entails isolating people from the natural environment as means of controlling or limiting their destructive potential.

In practice Vumani does very little of what is said above. As a matter of fact, his employers are 'pulling down fences' from a previously protected area, making it available for housing development. The lack of regard for 'nature conservation' in the traditional sense, as evidenced by Vumani's institution, and the high levels of interaction with people and the way they interact with the environment in the coastal town where he works, indicates that Vumani's role is not 'conservation' oriented, in the traditional sense, but involves a new, and evolving approach to the practice of environment management in a local government context. It also appears that Vumani is faced with the challenge of approaching his own institution in order to challenge their perspectives on environmental management.

Instead of focusing purely on conserving natural flora and fauna, Vumani is tasked with collecting revenue from fishermen, approaching pet owners to ensure that they make use of animal spaying services and the planting of town parks and gardens. Many of these tasks are conflict-ridden, and socially challenging. As mentioned earlier, the environment in which Vumani works is characterised by strained race relations within the municipality, and amongst the town's residents dating back to the dark days of apartheid. These and other factors, make Vumani's task more complex.

Whilst undertaking my field work, I noticed that Vumani was quite frequently getting involved with, or being tasked to do things that were not in his official job description, for example, dealing with labour unrest. Vumani also appears to be able to engage in issues that have a strong social dimension.

His experience in dealing with local social issues, appears to be stronger than that of his senior managers in the municipality. This is a result of previous involvements in mass demonstrations, he understands the emotional dimensions of a toyi-toying crowd. His township life experience appears to come in handy when carrying out these new 'environmental' management duties or sustaining this new approach to the practice.

His interventions in issues such as labour unrest appear to be a relief of the senior municipal personnel, whom are all white. Vumani's interventions appear to spare the senior management from dealing directly with often-enraged employees. This 'mediator' role with all its associated sub-roles tend to pull Vumani away from his environmental management functions.

The social dimension of his 'new role' seem to have slipped into his programme quietly and has taken over to such an extent that, instead of finding him at the beach or at the forest, one is likely to find him doing 'outreach' work in and among town houses and on odd occasions in the township. This scenario is not peculiar to his institution only, as I have learnt that another conservator from an adjacent town spends his time the same way.

The neighbouring conservator points to the fact that this places him in a sensitive and precarious position, in which he is expected to mediate conflicts, and go against local (often black) subsistence fisherman, thus often increasing conflict situations. This leads to resentment and suspicion, as both Vumani and his neighbouring conservator feel that they are not being adequately rewarded for a difficult task, by not getting access to career advancement opportunities in the white dominated municipal management structure (Interview with Second Nature Conservator, not attached, 1999).

Vumani also appears to lack commitment to the job, and shows signs of insubordination and a lack of care, all of which can probably be ascribed to the difficult conditions in which he works. The description of the environmental management role of Vumani, and the complexity of the range of competencies required for his job, raises a fundamental question.

The question is whether his challenges stem from the evolving field and practice of environment management which makes him appear to be devoting more time to what normally would not be classified as a 'nature conservation' function in this context, or are the apparent difficulties and complexities in the management structure of in this local government context partly to blame? These issues have implications for the development of training programmes for entry level environmental managers such as Vumani. The next session presents the way Zweli fulfils his role as an environmental manager in an NGO context.

**Non governmental Organisation:** Unlike government or civil servants, people working for NGO's have over the years been 'beacons of hope' in assisting the marginalised and impoverished people. By their nature and practice, these organisations were against the policy of apartheid and focused on minimising its impact at the time when the country was under sanctions. As stated in Chapter Three, apartheid had a profound impact to the manner in which people, particularly Africans related to their environment in this country. It therefore should not come as a surprise that Zweli and his organisation are active in the field of capacitating the impoverished communities. A worker in an NGO in the past would therefore have had an activist style or non-traditional approach to doing business and would have had nothing or very little to do with government special aid programmes.

The present government suffers no legitimacy. Instead of playing an opposition or activist role, Zweli's current role has changed to that of complementing or giving support to government development or outreach efforts. For example, the food gardening project that Zweli' is involved in, is co-funded by the Department of Health and Welfare. Seeing that the government is primarily not sufficiently staffed and financially equipped, partnerships between NGO's and government are being formed with an aim to implement certain key delivery programmes.

Zweli's role therefore involves working co-operatively with representatives from these government departments to deliver his programme. Besides being involved in co-operative delivery of the national development agenda through the above mentioned partnerships, Zweli's day to day activities involve gaining knowledge of, and sharing skills associated with permaculture gardening.

As noted earlier, this is a food production method that is said to use local organic resources for fertilising, pest control and management. The challenges that Zweli faces, is to gain the knowledge needed to support others in this role (hence being involved in the skills transfer programme with the volunteer permaculture specialist). Zweli is involved in planning the day-to-day activities of the programme. He visits schools where he meets with school principals and negotiates the activities that the learners will be involved in. For this Zweli also needs adequate teaching skills and some curriculum knowledge so that the programmes can be integrated into the school curriculum (see Table 3.3.2 for a more comprehensive list of Zweli's tasks).

The point of this discussion is, however, to indicate that not only does Zweli require the technical knowledge associated with permaculture gardening as an environmental management activity, Zweli also requires a wide array of social skills involving negotiation with government departments and educators. He also requires educational knowledge and competence, as well as general planning and job-related management skills such as evaluation and reporting skills.

**Industry:** As discussed in Chapter Four, Dinga's institution is financially better off, if compared with that of Zweli and Vumani's. Its employees have been exposed to more training than in the other studied institutions. One would therefore be tempted to deduce that this would translate into a better organised environmental management strategy, and improved environmental management capacity amongst environmental management practitioners in the institution.

On talking with, and spending time with Dinga, I noticed that he does not see himself as an environmental manager. I observed that he battles to link 'environment' to his line function activities. Dinga banked his hope on the EMS course he was scheduled to attend in preparing him to being a functional SRP (environmental manager).

It was clear though that his work plan and targets are not likely to suffer as a result of this added responsibility. In fact, he rescheduled his participation on the EMS course because his line function manager, who is not linked to EMS or SRP's wanted his project progress/completion report.

There could be many 'valid' reason for Dinga's inability to link environmental management to his line function core duties. Besides the past industrial practices/conduct, his institution does not seems to have taken the time to think more clearly in terms of how best to integrate environmental management responsibilities into its existing line functions.

It is also important to note here, that, at the time of my fieldwork with Dinga, he had, as yet, not been inducted into his EMS role. Even though he was yet to take on the EMS function, his operation area had not changed, and his line function responsibilities had not been changed or re-oriented in the light of his new responsibilities.

I would, however, like to site a few examples to demonstrate the way Dinga sees himself carrying out his tasks as an Environmental Manager. As noted in the previous section, Dinga's institution has a fairly limited view of environment and environmental management, linking it mainly to operational procedures. This is demonstrated by a few enunciated incidents that I noted during my field trip and discussions with Dinga. For example, Dinga perceives an attempt at avoiding to fell a tree or disturbing its roots when doing construction work as an advanced state of caring for the environment.

Saving a few trees that in the past they would have destroyed without a blink of an eye is indeed a contribution, but certainly not the only way the institution could make a contribution to environmental management. Dinga also cited what has become a standard procedure by his gangs: use of non-powered equipment in residential areas as an example of good environmental management practice. This operational procedure decision takes into consideration the negative impact powered tools have on noise levels and is also a definite contribution to environmental management.

In my discussions with Dinga, I noted that the above measures were valuable, but could be viewed as 'limited'. I discussed the possibilities of the company putting pressure on its suppliers to produce ISO 14001 or some other acceptable certificate of compliance indicating either full compliance or effort towards meeting minimum environmental management standards. Dinga could not make a clear connection of the contribution this decision would have on the environment, indicating his limited view on environmental management.

Given that his institution had, before the introduction of EMS upgraded soundproofing technology of standby generators in residential areas, I expected that someone in his position would be able to link such a move to environmental management. Perhaps the line function division of work, adopted by his institution deprives him of that holistic picture. Such a deprivation would limit his ability for reflexive planning, or developing and refining that competence.

Resulting from the poorly planned EMS implementation plan, a limited grasp of environment management and limited opportunities for developing reflexive competence as a result of the hierarchical nature of the line function system, Dinga is likely to experience difficulty in broadening his current view of environmental management, and his associated competence.

It would seem that without good quality training that will provide him with a broader perspective into what the environmental field might entail, the planned focus on technical detail (a feature of the daily worksheets developed for reporting) is likely to narrowly focus his understanding of the environment concept and limit his environmental management practice to what the worksheet indicators record.

In addition, I observed during the EMS induction course, that a weak implementing structure had been set up in the company, and I noted that it would take some time and considerable pressure from senior managers before quality feedback (data) gets to SRP's due to ad hoc delegation of this function. In the meantime, however, the international strategic partners are 'happy', they have seen training plans, and implementation rollover targets. This appears to raise issues around the quality and intent of the environmental management training provided in Dinga's company.

From the above descriptions of the roles and day-to-day challenges facing the three case participants I was able to gain insight into some of the important dimensions of this evolving field, all of which have implications for the design and development of training. In Vumani's case, it would seem that social dimensions such as conflict management are an important dimension of environmental management work. In Zweli's case it would seem that social competencies such as liaison with government departments, school principals and teachers are an important dimension of his work.

In Dinga's case it would seem that a broader perspective of environmental management in an institutional context (national and global) is an important dimension of his work (See table 6 for an overview of the generic roles identified across the three case participants).

All of the three cases thus far have pointed to a lack of understanding of the nature and challenges of the evolving field of environmental management, a factor which would surely impact on the relevance of training and the job descriptions of entry level environmental management practitioners. The following section discusses how issues such as lack of understanding and commitment to the field manifest themselves on areas such as job description and related training.

### **3. THE CONSEQUENCES OF 'POOR' UNDERSTANDING OF THE FIELD OF ENVIRONMENTAL MANAGEMENT**

In the process of conducting and documenting findings of this study, I realised how this 'confusion' around the field of environmental management manifests itself (see descriptions above). One of these manifestations has been the production of inadequate job descriptions, particularly in the two job descriptions (Local Government and Industry) which both proved to be inadequate in the sense that, none of them successfully captured the scope of work done by the studied practitioners. In the case of the NGO, they did not produce a concise job description for Zweli, choosing to update it as he developed additional skills.

If my point about the evolving nature of the field of environmental management is considered in more depth, then the issue of the job description shortcoming develops another dimension. That dimension entails the fact that, those who are tasked with developing these briefing documents are themselves unaware of the changes taking place in the field. It seems that they are also unaware of the diverse contextual constraints associated with the role of entry level environmental managers (as illustrated in Chapter Four, and discussed above). I would like to clarify this point further using some examples from each case.

**Local Government:** Vumani's job description, attached in this study as Appendix 4.1.1, captures very little of what he does on a daily basis. For example, the SPCA outreach work that he does, which could be argued as fitting the role for someone in his position and field is not mentioned in his job description. His job description does not include conflict resolution either, although he appears to be involved in such activities on behalf of the municipality.

In order to fulfil the requirements of the role that he actually plays (not the one described in his job description), Vumani will require a variety of other competencies, for example, knowledge of animal food rationing, rearing techniques for domestic animals or pets, dealing with stress experienced by these animals from abuse or post surgical trauma. If the SPCA role is omitted as it is, Vumani is unlikely to have funds budgeted in order to train him to perfect his competence in this role. Section Four of this chapter deals with the implication this kind of poor understanding of the field of environmental management might have on training provision for these managers in more detail.

**Non governmental Organisation:** Although Zweli's job description is not perfect, at least there has been some attempt to adapt or update it as he focuses on a particular project. The only concern I have is that his latest job description is not as concise as the one he previously had (compare the two job descriptions attached as Appendices 4.2.1 and 4.2.2), nonetheless an attempt was made to produce one instead of him being expected to this.

Moreover, he has been sent for training and he works in a mentoring environment. His new role essentially entails inducting school pupils and teachers on the subject and practice of permaculture food production, a task which he undertakes with the support of the volunteer permaculture expert.

Although Zweli's job clearly requires him to have a good knowledge of schools, education and curriculum development (so that he can ensure that the programme relates properly to the school environment and curriculum), he does not have a formal qualification as a teacher. Being able to make relevant links to school curriculum is a complex task, which will require considerable training. The problem of failure to establish appropriate links to the school curriculum, is likely to reinforce the perception that environmental work is essentially extra curricular.

This point was affirmed by Zweli when he with an example of late pupils being punished by doing gardening work, thereby relegating this important activity into a mode of punishment. Perceptions and practices like this illustrate the importance of Zweli being able to challenge these perceptions and practices with a good knowledge of the value of permaculture gardening as a relevant curriculum activity. By virtue of being involved in a programme such school based gardening or permaculture, Zweli, in effect, becomes a teacher and he therefore needs to know not only the broad syllabi or curriculum, but also best or appropriate teaching methods.

If his seniors do not recognise the teaching role that he plays, and if this is not adequately reflected in his job description, he will not be exposed to adequate training opportunities in order to gain the skills to use appropriate teaching methods. It seems that most of the time, he relies on improvisation and trial and error.

**Industry:** If one is looking for a detailed job description, then Dinga's is an excellent example. In fact, it is so detailed such that it is better to refer to it as a work plan, since it even includes dates, specific target dates for reporting and technology change, means to achieving plans, including affirmative action progress evaluation milestones. An extract of his work plan is attached as Appendix 4.3.1. Bearing in mind the earlier point about his institution's limited view of environmental management practice, one could conclude that his company would do well in outlining the environmental management tasks for SRP's.

Dinga's work instruction sheets provide an extra ordinary level of detail of what has to be done by whom, for which division, at what time and where to submit the forms, illustrating the line-function style of operations in the company referred to earlier. Where an environmental problem is identified, a more detailed description through incident investigation is required.

For example, chemical compositions must be detailed if chemicals are involved, the supplying institution of that chemical must be identified, and a detailed explanation on the extent of the identified problem must be given. This level of detail and quality reporting associated with environmental management responsibilities remains an ideal in the NGO and local government cases I studied.

The question of course, is whether short-term technical training courses provide adequate training to equip entry level environmental management practitioners to produce and interpret the required detailed information and as such is this level of technical activity desirable?

Would such courses provide the kind of competence that would enable those entry level environment management practitioners to pre-empt and proactively make decisions that link up to other activities within their organisations, say for instance, a contribution towards the achievement of a broad aim/ vision? This issue was not researched in the context of the study, nevertheless it raises an important issue associated with training provision for entry level environmental managers.

As indicated in Chapter 5, I now turn to an examination of existing training provision, in the light of the above noted points that I have raised about institutional views on environment and how they shape environmental management practitioner roles; the day-to-day challenges faced by entry level environmental management practitioners as shaped by contextual and other factors; and some of the problems associated with the way in which roles are defined through job descriptions. Throughout this discussion, I have pointed to implications for training, and issue which is picked up in the next section, and in Chapter Seven.

## **4. TRAINING PROVISIONING BY THE STUDIED INSTITUTIONS AND EXTERNAL OPPORTUNITIES**

### **4.1. CONSIDERING TRAINING PROVISION IN THE LIGHT OF THE CASE STUDIES:**

In the preceding sections I have mapped and presented practices in the field of environment management as understood and carried out by the three studied practitioners. I discussed challenges facing their institutions as they grapple with assigning or clearly defining the roles of these practitioners, especially the frustrations which emanate from the seemingly mostly incongruous understanding and practice in the field of environment management.

In the preceding sections I pointed out how such lack of understanding of the environment management field, affects the defining of these roles in the form of job descriptions, and I pointed out how this may influence the kind of training that entry level environmental practitioners may be exposed to.

While much of the above discussion has centred on problem areas, I should point out that there are positive developments in the institutions as well. The reason I have chosen to focus on some of the problem areas, is because they have a bearing on training and capacity building for practitioners, and they have provided some of the more interesting insights into the dimensions of the evolving field of environmental management.

In Chapter Three, I discussed in some detail the extent of government policies and efforts, illustrating government's commitment to improving the competence levels of the country's workforce with a key focus on principles of equity and redress, particularly for those who were previously disadvantaged under the apartheid regime. The thrust of these redress policies therefore is to enable blacks and Africans in particular to have good training which would translate to better work opportunities, better remuneration; in essence job mobility with marketable and appropriate skills.

I also made mention of the fact that, the NQF provisions are primarily designed with the previously disadvantaged group of learners or workers in mind, and with the goal of economic development in mind. Among other things considered by policies is their need for establishing career paths, fast-tracking access so that learners can gain qualifications. Opportunities exist for practitioners in a given field to gain recognition of their skills, through a system that recognises prior learning and experience. The implementation of the NQF will therefore require not only a sound knowledge of the field in which learners are being educated (e.g. the environmental management field in this case); but it will also require insights into learners prior knowledge and experience (as illustrated in the case studies).

Thus, having presented and discussed these case studies, it is necessary at this stage to discuss whether the trainees and trainers have the same understanding of what has to be done in terms of training packaging and provisioning. This understanding is important, especially having learnt that employers are not always fully aware of what the field of environment management entails. I would now be examining and discussing the findings of the national survey against what has been identified and discussed from the case studies, as discussed in Chapter Four and in the first part of this chapter.

#### **4.2 RE-VISITING THE SURVEY DATA:**

A nation-wide analysis of training opportunities, reported in Chapter Five, reveals a lack of 'progress' (for lack of a better term) amongst training providers, particularly reflected in the limited scope of the training. As reported in Chapter 5, the primary focus of most environmental management training is biased towards the technical aspects. Social (and educational) dimensions appear to be a somewhat neglected dimension of these training programmes.

I am using the phrase 'lack of progress' because, as experts in this field, I think training providers that are in-touch with their field of practice 'ought to be' aware of the significant shifts in practice, and the kinds of challenges faced by entry level environmental management practitioners, as revealed in the case studies.

The absence of training that takes into account this 'new' (social) dimension in the field of environmental management can be regarded as indicative of lack of research and understanding on the part of training providers. However, it could be true that my conclusions on the topic fall short given that I have only looked at the topic from the point of view of the previously disadvantaged, and that the demand for highly technical training in the 'traditional' environmental management quarters remains high.

I would argue, however, that the insights gained from this study, into the very real challenges faced by environmental management practitioners on the ground, warrants as much emphasis as the technical dimensions of training. Training that is more responsive to the kinds of challenges outlined in this study, should be addressed, particularly in the light of transformation taking place in the country and in the employment and training sectors (as discussed in Chapter Three). Transformation has implications for the manner in which people do things - this would include the way the environment is managed, and the way in which training is designed and provided in this context.

Thus the question of whether existing training opportunities are adequate to meet the needs of entry level environmental managers, as discussed in the context of transformation, and as illuminated by the three cases.

Do the existing opportunities (as identified in Chapter Five) address the working and professional needs of practitioners? If the experience or actions of the studied managers is something to go by, I would conclude that existing training opportunities by their institutions does not appear to adequately address their needs. From the three cases, it would seem that all three case participants would benefit from additional work-place based training in environmental management. This conclusion is based on the fact that, all three case participants are currently registered for graduate and short course training elsewhere, to either build on their work related training requirements or for courses that are not related to their current work.

All of them are self financing their studies and only one of the three receives study leave. It seems, therefore, that they are seeking ways of improving their skills through self selected studies. In most cases, however, the studies are not geared towards providing them with an entry level qualification in environmental management. One of the problems identified with the availability of short courses (as reflected in Chapter 5) is the high cost of the short courses.

Most environmental management courses cost between R2000 and R14000 for a two week course, and if a learner such as one of the case participants were to enrol for a series of these short courses (to gain a comprehensive insight into the whole field of environmental management) it would become very expensive. In Zweli and Vumani's case, this would probably be impossible.

### **4.3 Towards a generic entry level qualification for environmental management practitioners**

As mentioned above, there is a tendency for practitioners to undertake a series of short courses, as they attempt to upgrade their skills, and respond to the challenges in their workplace. According to the NQF, the possibility exists for the short courses that they have all undertaken in varying numbers to be recognised in the context of a single recognised qualification (see Chapter Three on objectives of the NQF). This provision should, hopefully, through recognition of prior learning, assist especially those with people with 'unstructured' educational background.

Unstructured training could be a series of short courses that a person has been undertaking whilst occupying various positions in an organisation, especially if the person worked in various departments of the organisation. It may, of course, be difficult to establish linkages amongst the various components of the unstructured training, for example what kind of a qualification could be awarded for a combined competence in permaculture, conducting tour guiding, typing skills, business training provider, informal educator, as in the case of Zweli for instance?

This kind of unstructured training is a reality for many people in this country, in some cases some have realised much later in their careers that they are on the wrong path and have had to change. This presents a particular challenge to the task of educational transformation and the implementation of the NQF in particular.

Short courses of varying duration, quality and price appear to be sought after and popular if one employs the demand/ supply equation in assessing the field of training provision. The process of 'moulding' these short courses into a qualification has its own problems.

A quick look at the short courses listed in Table 5.1 reveals that they are not linked to a particular level on the NQF and they are not accredited. I have also made the point elsewhere that the bias in this training is mostly towards technical expertise, thus providing a 'skewed' perspective of environmental management training.

Currently the Standards Generating Bodies are attempting to resolve this problem by developing coherent unit standard-based qualifications. A qualification will then be made up of a number of related unit standards, which ought to provide a more balanced view, at an appropriate level. SAQA have also requested all providers to register short courses, so that they are able to 'audit' what is happening in the field. From this research, I would argue that the generation of standards, especially for this field should be not be done in isolation of practice. This would be as important in the provisioning of training opportunities.

The following Table (Table 6) shows common areas in the field of environmental management identified at the entry level, as they emerged from the three studied contexts, demonstrating that there are generic roles in the field. If these common areas exist, it means it would be possible to generate some kind of a generic entry level qualification for environmental management practitioners. This could help to address the lack of awareness of the breadth of this field, as identified in this research. It could also provide the contextual focus required for the generation of standards and qualifications, as argued above.

**Table 6: Generic roles and competencies in and among the studied environmental managers.**

<b>ROLE</b>	<b>NGO</b>	<b>LOCAL GOVERNMENT</b>	<b>INDUSTRY</b>
Operations dealing directly with the environment	Food gardens	Commonage patrol and planting of trees in town and parks	Construction
Report writing	Monthly reports to the Director	Weekly and monthly reports to the senior conservation officer and the Town Clerk/ Chief Executive Officer	Compilation of project and project update reports for senior manager.
Environmental audits	Social impact studies	Ecological audits	Institution's impact on the environment
Policy formulation, interpretation and implementation	Participate in policy formulation discussions and lobbying for stronger policies relevant to the practitioners field	Enforcement of TLC regulations and keeping abreast on the effectiveness of regulations in achieving the desired outcomes, e.g. the anti-mussel poaching initiative	Implementation of national regulations and informing compilation of company operation' specific policies
Public relations and communications	Keeping contact with partnership schools and conducting weekly visits over the contractual six-month period	Obtaining the confidence of the black population towards conservation officials. Starting youth clubs for awareness programmes about the local flora and fauna	The company's EMS stipulates that the studied manger will have to consult with communities in the project operation areas before, during and prior to project completion.
Working in partnership	There are set rules for each person in the team. As this is a skills transfer partnership, responsibilities are shared, more being given to the learner with the mastery of taught skills	There is no team working in this organisation. Senior managers have not shared duties with the junior manager. There is also very little consultation with the external organisation and other departments	Industry has managed to establish well-bound internal teams through their incentive system, but the system is not geared for establishing outside partners or working relations. Public consultation is deemed a hindrance in achieving targets
Budgeting and costing	Budgeting for the food garden programme	Establishing lost revenue from tourism through invasion of the dune and coastal vegetation by private properties	Costing real and possible environmental destruction and rehabilitation during construction services operations

The above can also be used to guide the development of environmental management training. It illustrates the need for a balance between technical knowledge and expertise, social skills, and workplace-based management skills. It appears training provision has turned into a lucrative business, and I believe the need for, or insistence on redress makes it even more lucrative, as more courses aimed at filling 'training gaps' have to be developed.

The development of training programmes will increase with the new Skills Bill, and the skills development levy (See Chapter Three). Based on this research, I would argue that the development and provision of training is a business that should be contextualised I will return to the above-mentioned issue in the following chapter when I will be making recommendations for training based on the needs of entry level environmental management practitioners, taking into account also the difficulties employers are having.

## **5. SUMMARY**

In this chapter I discussed the findings of the three case studies as well as the national survey on training currently offered in the field of environmental management. In discussing these findings, I started with the issues of how environment management functions are carried out by the three case participants, and how environment is regarded by the studied institutions. I discussed how views of environment in different institutional contexts tend to shape the roles of the environmental management practitioners.

I also undertook a detailed discussion on the roles of studied environmental managers within their respective contexts. In discussing their roles, I made referred to what I see as 'new' roles in order to demonstrate the evolution currently taking place in the environment management field.

Job descriptions and their role in briefing and/ or delineating the scope of a practitioner's work - including the influence these might have on training provisioning, were discussed. A strong feature with regards to the compiling of adequate job descriptions appears to be a lack of understanding of what the field of environmental management entails.

The chapter ended with a discussion on the survey results (Chapter Five) posing questions of whether this lack of understanding is limited to employers only, or whether it is also prevalent amongst external training providers.

A discussion on the available training opportunities raised a question as to whether current training opportunities are able to adequately respond to the management and personal development needs of entry level environmental managers. I argued for a consideration of context, in designing qualifications and training programmes.

To support these developing arguments, I presented a table depicting generic roles and competencies (Table 6). While I mentioned its potential significance in informing the development of qualifications and training programmes, the table was not discussed at length. It must be recalled that the study did not seek to establish a particular qualification, rather to identify roles and associated competencies amongst three entry-level environmental management practitioners.

The identification of these generic roles, and the insights into the contextually specific challenges associated with these roles, and the associated competencies, does provide a tempting challenge to attempt the process of organising them into some kind of a course outline. The following chapter concludes, and makes recommendation on the study and its findings.

# **CHAPTER SEVEN: CONCLUSIONS, REFLECTIONS (ON THE STUDY) AND RECOMMENDATIONS**

## **1. ORIENTATION TO THE CHAPTER**

This chapter concludes the discussion of the research findings, which have been presented in Chapters Four and Five and discussed in Chapter Six. I will first tackle the task of concluding the study in general by highlighting key issues that have been identified and constitute key findings. I will then reflect on the research journey that started with the process of choosing a research paradigm(s), and ended with the analysis presented in this report. Lastly I would make a recommendation by means of a course outline, which could also inform the development of a qualification in the field of environment management which I deem suitable for entry level environmental management practitioners, based on the findings of this study. The following section provides the concluding remarks on the study findings.

## **2. COMMENTS AND CONCLUDING REMARKS ON THE FINDINGS OF THE STUDY**

This chapter perhaps presents me with the greatest emotional and professional challenge in the sense that it hails the end of a study that I personally believe if time permitted I would still continue with. However at the same time it resembles a shrill sound from a long awaited whistle confirming that the finish line has been crossed. I sincerely hope that the work and the time we have invested as both the researcher and the researched provides an insight that could kindle an interest especially from those who can do something to intervene and assist these needy managers.

I am not prematurely engaging on a process of reflecting on the journey, rather engaging on a psychologically therapeutic exercise which is needed at this stage to generate the strength to put a full stop or put down the pen. To shift from this therapeutic exercise, I would now highlight and conclude on some key findings and their implications on what the research question sought to explore, i.e. whether there is a need for a new qualification to cater for the kind of managers I have studied.

### **2.1. A SYNTHESIS OF GENERAL FINDINGS**

This section deals with broad issues that have been elicited among the cases and the survey. The following sections will focus on areas where there has been some congruence regarding training provision and environment management. This would be a brief exercise, since lessons from these common areas have been dealt with in detail in Chapter Six and will be revisited under the section in this chapter dealing with recommendations.

**Job specific technical - versus professional development training:** It appeared among the three case studies that there exists an understanding that environmental management training is primarily about gaining technical skills to do the job better. This study, questions whether technical training is the only kind of training suitable in building capacity among employees in order to perform their duties well. It appears as if there is a need for a broader view of training, that will lead to professional development, involving a range of different skills, which are often contextually defined (e.g. the conflict resolution skills in Vumani's case, and the education skills in Zweli's case).

I am certain though that if courses these practitioners are sent to by their employers are something to go by, technical and job specific training receives paramount preference. I am not advocating a view that one can not develop professionally from technical training, rather I am posing a challenging question of is it not the duty of an employer to undertake an all round development through training of their 'valued' employees.

I make a bold statement that a shift from the 'narrow' technical – focused approach to training is needed, to encompass social dimensions, as well as reflexive competence (as in the case of Dinga), all of which is in line with the national skills development related policies discussed in Chapter Three to truly empower employees through proper training. Looking at the tuition costs of short courses in Appendix 5, I have realised that provision of training is 'expensive', and is therefore an important factor in enabling access to training. Employers and employees (self funding) will therefore have to carefully consider the quality of the training, and its relevance to a career path in a chosen field. At the moment, given that most of these courses are not accredited I am not sure if there is value for money in them, at least to the employees who might need a SAQA/ NQF formal accreditation.

**Short versus long term training/ courses:** It appeared in the process of discussing the courses on offer and looking realistically at the time that could be set aside for training, that the short versus long term course debate is not an either/ or situation. Rather, whether a course is of short or long-term nature, it should meet the needs of the employers in building technical/ specialist competence to their employees, and meet the needs of the employee for broader professional skills to deal with the complex challenges they are faced with on the ground.

Short courses are designed to respond to urgent training needs and rarely venture on to a detailed, or broader exploration of the landscape of the field which the course participants work in. When providers sometimes seek to address employee/ participant work specific challenges, participants are asked to indicate their expectations of the course.

Whether these expectations are addressed at the end of the course or taken into account during the exposition of the content is a different matter and might differ from one provider to the next.

Long-term courses are in most instances in a better position to build broad understanding of issues and how an issue relates to other things overlapping within its sphere. They assume a purposive and systemic approach to understanding an issue and provide a broader scope to dealing with issues. This is contrary to prescribed 'ground-breaking' discoveries of field experts who render short courses. It must be understood again that I am not saying short courses are bad, but I am rather critiquing their ability and suitability in building up solid and reflexive competence in the particular field they are offered in. But is there time for attending long-term courses? When is it that a course should be deemed long-term?

**Time is Money:** In the private sector there is a common saying that 'time is money'. Indeed it is, in fact the saying is applicable even outside the private sector, and it costs to pay a salary for someone who is away on a study leave. Since over an extended period (anything starting from three or six months) an employee is on leave, employers are likely to employ someone else on contract to keep the work going. Some employees do not compensate workers who go on extended study leave and this will discourage or make it impossible for employees to attend long-term course.

The studied participants were all paying for the long-term training or education they were undertaking even though these were to benefit not only themselves, but also their employers in their current or future positions. There are other sacrifices the participants make, for instance, being away from family for extended periods if training is provided by institutions not located in their home or town or town of work. Training providers need to be aware of these realities or sacrifices and thereby move away from providing training of inferior or poor quality.

This section has reflected on the nature of training provision, as experienced by the case participants, and as illuminated by current possible training options (see Chapter 5). This provides an important backdrop for the rest of the discussions in this chapter. I would now like to briefly deal with some of the key findings of the study.

## **2.2. SOME KEY FINDINGS FROM THE STUDY**

**Entry-level environmental management training:** From the national survey it appeared that there is no accredited qualification currently on offer at Levels 4 and 5 of the NQF. Available courses predominantly tackle isolated sections within the field of environment management and these sections cannot at their present form be moulded into a qualification.

All the studied institutions provide training suiting their limited budgets and there has been no indication of attempts at increasing the slice of the training budget, except for the legally enforceable skills development levy. For example, local government relies largely on a poorly structured skills transfer method of training, the NGO also uses the skills transfer approach but with a 'practical' mentoring strategy; whilst the industry provides a series of 'line function' specific training and internally developed and tailored short courses. None of this training is provided according to a qualification or even a clear career path plan.

**The scope of the environmental management field:** The environment management field is broad and as such demands a broad range of both technical and non-technical competencies. A shift in emphasis in environmental management practice appeared to be taking place among the cases, where social issues are, in some cases, almost taking centre stage in dealing with 'environmental' issues. This phenomenon could be attributed to deliberate and historical attempts at separating people and their environment or natural resource base, an underpinning notion for formation of parks and conservation areas.

Due to the broad nature of this field, senior managers or those tasked with devising job descriptions for junior managers face a challenge and at most fail to produce concise and comprehensive job descriptions. As a result of that failure, junior practitioners are deprived of appropriate training in order to fulfil those tasks with ease and success. Where they perform these task, which they all do, they are not always recognised as environmental management practitioners, but locked into narrow fields such permaculture, nature conservation or construction operations manager.

**Institutional views of 'environment':** From the cases it appears that where linkage between the environmental manager's job, institutional area of operation and the 'environment' is misunderstood even if recognised, environmental issues are secondary to core business and in most cases not included as business indicators.

The point I am making above is best illustrated by the local government case, where money is spent to pay Vumani's salary as a Nature Conservator. Meanwhile the Economic Development component of the town goes ahead and rezones at will one of its pristine natural vegetation areas to make way for the construction of holiday houses. Conservation or environment management then in such cases becomes a smoke screen whilst environmental destruction is practiced in reality.

In Dinga's case they claim that environmental management falls outside what they regard as 'core business'. Admittedly strong attempts are made to implement an environment management strategy in the form of an EMS. Since this strategy is at infancy and has not operated, it would be interesting to see if the demands and aims of the EMS will be taken into account during 'roll out' of their programmes, from procurement to construction.

Zweli's case is somewhat different, they have chosen to get themselves involved on fostering environmentally responsible food production methods. Their co-operation with a variety of government programmes such as tourism, welfare and cultural promotion deserve a special recognition as a contributor to holistic environment practice. The permaculture project is an innovative and environmentally sensitive way of dealing with the issue of food production and food security and provides an alternative to the apparent insistence by government of the province to 'go commercial' on agriculture.

The importance of this programme is accentuated by its need to optimise and make productive what at the most is inimical and harsh environment of the semi-arid Eastern Cape. I would now reflect on the journey of this study. As I pointed out in Chapter 6, institutional views of environment have an important shaping influence on the roles of entry-level environmental managers, and on their capacity development through training opportunities.

### **3. REFLECTION ON THE JOURNEY OF THE STUDY**

#### **3.1. RESEARCH METHODS**

Choosing the most appropriate research methods did not prove an easy task, even after attending a well organised and presented research methods course. When I finally chose to use a case study method, I was not sure of its appropriateness for this study and was worried also about whether I was to be able to utilise it appropriately. Having listened to a number of people during the research methods course telling how they have had to rewrite and reconsider the way they were approaching their research questions, I had no doubt that the year ahead was going to be a challenging and a busy one.

On my first visit to the participants, I came back certain that I had quickly learnt the challenges of the case study research method. The evening of the first day on my first case I wrote about everything that was observed during the day. I was sure that I was on the right track. The only 'rude awakening' came when I decided to share those notes with my participant; a lot of what I wrote was not 'censured'.

By that I mean, there was a lot of information that could have upset my hosts, possibly straining relationships in and among 'colleagues' as in some cases work politics appeared to have been better remained in the institution, especially prejudiced comments.

That was a very valuable yet hard lesson for me. Looking back now I can see I was naïve, perhaps because of being a new researcher, and I lacked some fine-tuning to the ethics of research. I honestly felt I was not doing justice by not 'letting others in' on what I and others thought of them, but that was not the purpose of my being there.

I think my history of being involved in environmental activism nearly got the better of me and could well have sparked fires that were not necessary and I had no means, time, and training to extinguishing them. One of the main challenges I faced was to 'temper' my own opinions, and to try to validate these with data.

The two days I spent on my first site prepared me for the other site visits, but I was convinced at the end of all the visits that there was very little that was to change me from thinking like an activist to an academic researcher. I did not foresee a situation where in the long term I would have to be torn between the emotive style of activism, and the more restrained style of academic writing. I still hope that once this study is complete I would advocate for some form of justice in dealing with the empowerment of the predominantly black new recruits into the environment management field.

But the above mentioned dilemma was a cloud that was soon to pass as I later came to grips with how to get do things, for example, I took an opportunity to present a short paper and played anchor for providing background information on the EMS course I attended. With all the data gathered, now came the stage of analysing it and presenting the findings. The following section deals with the lessons learnt from those exercises.

### **3.2. THE PROCESS OF WRITING UP**

About three weeks after concluding my field visits, I had to start with the analysis of study findings and consulting literature. This process had started a while back with my supervisor when I exchanged findings that I had gathered during the many informative supervision meeting we had leading to the write-up.

I soon realised that I had a lot of information at my disposal that I had gathered, and I was not quite sure how to organise and code it. The biggest challenge I was faced with was with regards to coding the information with the pseudonyms that I had to use to avoid linkage with the participating institutions.

I had to exhaust my energies on making sure that no information would find its way to the final product which could lead to the identification of these institutions. I also soon realised that, my approach to meeting the challenge of concealing institutional identity was not the only one I was to contend with. I still had a more formidable task of presenting the findings in manner that would provide insight into the training needs of these managers to the potential training providers. In order to justice to the needs of these managers I faced a challenge which I think most new comers in research experience, that of making a factual and substantiated argument.

I have always regarded myself as someone who could write and present an argument, but when I started writing up, I found that I could not relate well to my audience. It is the audiences that, Yin (1993) emphasises that a researcher must bear in mind for preparing and presenting a case. It has since been the race against time in finding and mastering the skill of making an argument to an audience that I am not sure of.

Finding the relevant literature to back up and substantiate my argument proved a challenge as well, especially because there has not been a study of this kind that has been conducted. When one brings in the dimension of the transforming landscape of education and training in South Africa, I was never sure whether a study such as this adds would be consulted as one of the resources in the process of restructuring qualifications. The more I thought of these issues the more I felt that my advocacy stance and intentions, had to temporarily take a back seat.

I had to find, which I eventually did, a way of expressing myself that would not compromise the scholastic appeal of the study. For instance, I could write 'emotively' as long as I was not compromising the coherence and substantiality of the conclusions and strength of the findings. This provision by the post positivist approach to research made it possible for my own experiences to filter into the 'story'. Being able to reflect on my own experiences, to an extent challenging my own prejudices and shortcomings has been one of the most remarkable payoffs from the process of conducting this study.

Post positivism allowed me to reconcile my activist emotive writing with an acceptable academic style, which will go a long way in assisting me to carry on learning and improving on my writing and presentation skills. The following sections presents recommendations towards attempting to solving some of the problems or issues identified by the research for these entry level managers, and recommendations which I can hopefully take forward into the more practical side of lobbying for, and development of qualifications and training programmes.

## **4. RECOMMENDATIONS TOWARDS AN ENTRY LEVEL ENVIRONMENTAL QUALIFICATION**

The recommendations made are based on the apparent needs (in relation to actual roles and required competencies) of the studied environmental practitioners. Environmental management topics are selected firstly on the basis that they will provide adequate background to a person who has none in the field of environmental management. Another section deals with areas that are addressed by courses currently offered in the field of environmental management, (see Appendix 5 for the courses currently on offer in the field of environment management in South Africa).

The recommendations are by no means a prescription; rather offer a broad range of encompassing topics that could address the generic needs of entry-level environmental managers. Table 7 below is subdivided into core areas of learning, topics, and aims or comments. The latter column dealing with aim or comment provides justification for inclusion of a particular topic; areas of the study that support such a need are cited.

The inclusion of the course outline was only decided upon because there was information about the content of courses (part of the survey data), which pointed to, and related to, some of the case findings relating to the training needs of the studied environmental managers. The outline is by no means comprehensive, rather a rudimentary 'skeleton' that I am sure will need a lot of work in line with the NQF crediting system if someone decides to use it for this purpose in future.

The lack of environmental knowledge among the studied practitioners means that the qualification will have to be established at Level 4 or 5 of the NQF. That means at the level of a National Certificate or National Diploma. The course content that is presented in Table 7 will hopefully begin to address the learning needs of these and other entry-level managers who have very little, or no background in the field of environmental management. The outline also covers the needs of those who want to change careers or start careers in the environmental management field.

**Table 7: Recommended course outline towards entry-level environmental management learning.**

<b>CORE LEARNING AREAS</b>	<b>TOPICS</b>	<b>AIM/ COMMENT</b>
<b>Introducing environment</b>	Defining environment	This section should aim at introducing the concept of environment. All the participants in this study indicated they are not confident about their understanding of environment. Taking a historical approach, the section should build a chronological account of environmental issues and actions.
	Environment crisis	
	Origins of environment and conservation movements	
	Broad stakeholders list in environmental management	
<b>Introduction to environmental management</b>	Environmental management tools	This section should explore environmental management, as it is known today. The section should problematise this concept to challenge the course participants to contribute more about their activities. For instance this study has shed light on intricacies of the field, therefore it will be shortsighted not to seek for more from the participants.
	Human-natural environment relationship	
	Environmental management fields	
<b>Introduction to environmental management laws</b>	Local bylaws to national policies and laws	Government as the bona-fide bearer of environmental protection mandate is doing so through policies. This section should strive at presenting and debating as many of the relevant environmental management policies as possible. This need for legal understanding in the field is evident in all cases, (see Tables 2.4, 3.4 and 4.4 in Chapter Four about identified roles and competencies). Also see table 6, section dealing with policy and environmental audits.
	Lobby, promulgation and implementation of laws	
	Penalties, incentives and commitment to implementation of laws	

CORE LEARNING AREAS	TOPICS	AIM/ COMMENT
<b>Environmental communication</b>	Environmental information centres	This section should aim at providing skills necessary for keeping of records which can/ will be used to inform public and other employees. Also drive home that, even the smallest outreach programs go a long way in assisting the public and other stakeholders in decision making. Except in Dinga's case, the other participants take charge of their public liaison function or programs.
	Outreach programs	
	Report writing and record keeping	
<b>Environmental capacity building</b>	Assessing and planning environmental capacity building programs	All participants are involved with the training of their subordinates. This section should look at providing means of how best that training could be done. Or help participants to conduct own unit skills audit and decide on issues such as what training to be provided, by who and who should attend and why? The industry uses the train the trainer approach, and participants in Dinga's position will benefit in this section. Skills in this section should be made transferable, i.e. assist those who are compelled to conduct training like Zweli, whilst providing enough versatility for those who might take up the call on seeing the need like Vumani and his clubs.
	Setting up and managing innovative environmental management systems	
<b>Workplace environmental management</b>	Workplace or internship assignment	This section should provide participants with the opportunity to explore and reflect on their working situations. By so doing the participants will share, reflect, take recommendation and improve on their environmental management practices with the help of fellow participants.

## 5. OVERALL COMMENT

In concluding this study, I think it is fitting to provide focused comments on areas where I think, further research may be needed. This study has been conducted within an interpretivist paradigm. Through the case study I have managed to learn a great deal about what entry level environmental managers do, including the challenges they face, in this evolving field.

I have learnt how to conduct case study research, and I have conducted a national survey, implementing different research tools. I have also engaged with the writing up of, and presentation of scientific work and findings. The lonely times I had spent at night during field visits and during the writing up were sometimes overwhelming, especially because I was dealing with issues of people I had come to know – they even conversed about issues that were outside their work. They had let me in on their lives.

The field of environmental management is a broad one and practically encompasses areas that are more or less fields of studies on their own. Therefore a lot of work remains to be done in order to get in-depth information about the field. Such an exercise will be vital in formulating a qualification.

I suggest that exploring the core of the field in more depth would be the next step. A fair amount of that exploration has been done by this study, and a few documents that I have come across in the process of reviewing literature. It appears, however, that there needs to be an attempt to identify the 'core' components of the field, as they relate to the current context of transformation in South Africa. Perhaps crystallising what management in an environmental position actually entails, in this transformational context would help to clarify this in more detail?

It has been a challenge moving from a thin literature base whilst trying to unravel an issue as complicated as this one. Cohen and Manion (1980: 37) state that for an interpretivist study, "theory should not precede research but follow it". As painful as the experience can be when you are battling to find a backdrop against which to mirror what you observe, in the end, a lot of valuable information is generated and thus the process seems worthwhile.

## 6. CONCLUSION

This chapter highlighted some of the key findings from the research, which have been identified either through case studies or the national survey on training in environment related issues. The chapter started by contextualising findings that were common among the cases and the survey.

Key findings were also summarised under broad organising headings, viz. long versus short-term courses; time is money and others. On the basis of these key findings I made a recommendation that a generic qualification at NQF Level 4/5 is necessary, and if not feasible there needs to be a concerted effort in ensuring that all short courses are accredited. I provided a broad course framework which could be used as a starting point for designing such a qualification, or such a course. I pointed out that it would need further in-depth research and development work to take this activity to its full conclusion.

The chapter concluded with an overall comment and pointed out to the possible need of a study that would seek to explore the 'core' of environmental management practice, particularly in a context of transformation. This should provide insight into the question whether generic environmental management practices are similar or not, and how this should be interpreted in moulding a cross-field qualification for environmental management practitioners.

In essence this study has generated information for those who need to understand the work of entry level environmental managers, and for those who seek to intervene and redress inequities through the development and provision of quality accredited training opportunities and/ or qualifications; and for those who perhaps seek to develop a theoretical basis or further substance through ongoing research into any of the dimensions of the study that have been opened up here.

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## **INSTITUTIONAL DOCUMENTS**

An Introduction to the NGO, an overview and strategic document (undated)

Environmental Management Systems Induction Courseware.

Incorporating ISO 14001 to an Industry Environmental Management System.

## **REFERENCED FIELD NOTES**

NGO Day Two Field Notes, March 1999.

EMS Course Notes, September 1999.

Industry Day Two Field Notes, May 1999.

## **PERSONAL COMMUNICATION**

Prof. Janse Van Rensburg. Associate Professor, Murray and Roberts Chair of Environmental Education and ESGI Task Team Member. Personal Communication, April 1999 and January 2000.

Dr Heila Lotz-Sisitka, Associate Professor, Murray and Roberts Chair of Environmental Education and ESGI Task Team Member. Personal Communication, November 2001.

Moorhouse, S. Lead Consultant at Moorhouse CC, Industrial Environmental Consultants based in Port Elizabeth. September 1999.

## APPENDICES

### Appendix 2.1: An example of the cover letter for the questionnaire

Rhodes University Environmental Education Unit  
P.O. Box 491  
Rhodes University  
Grahamstown  
6139

Prof. van Jaarsveld  
Environmental Management School  
University of Pretoria  
Pretoria  
0001

Dear Prof. van Jaarsveld

Your assistance is hereby requested for providing information regarding courses and qualifications that your institution may offer in the field of Environmental Management.

I am a student at the above-mentioned institution studying towards a Masters in Education (Environmental Education). My research aims to identify possible gaps in the provision of environmental management qualifications in South Africa. In particular, I am interested in possible qualification gaps at the <sup>1</sup>entry-level (certificate) in the National Qualifications Framework.

Towards this end I am seeking your assistance in providing information on **any** courses and qualifications relevant to the field of practice broadly related to environmental management not just at an entry-level. We believe this information will be useful to the recently established Environmental Standards Generating Initiative (ESGI), and providers such as <sup>2</sup>your self.

Please find attached in this correspondence, a copy of a questionnaire to be used for supplying information on the topics under study.

Please contact me or my supervisor (Dr Janse van Rensburg - Environmental Education Unit: e-mail [edej@croc.ru.ac.za](mailto:edej@croc.ru.ac.za)) at Rhodes University, should you require further information, the results of the study or if you wish to make any suggestions.

Yours faithfully

Sidwell Dingela (E-mail: [edsd@croc.ru.ac.za](mailto:edsd@croc.ru.ac.za))

**NB: Please respond before the 12<sup>th</sup> of July 1999.**

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<sup>1</sup>Entry - level: Referring to a certificate level course for those starting out in an environmental occupation, consisting environmental managers or working as junior environmental managers.

<sup>2</sup>Please note that Rhodes University is not necessarily in the position to offer such a qualification.

## **Appendix 2.2: Copy of the survey questionnaire mailed to the training providers**

### QUESTIONNAIRE ON ENVIRONMENTAL MANAGEMENT QUALIFICATIONS

A covering letter accompanies this questionnaire and should be read before completing the questionnaire. The cover letter notes that the questionnaire refers to courses and qualifications that are relevant to environmental management in the broadest possible sense. Please supply the relevant information with regards to the each of the relevant courses offered by your institution.

1. What existing courses relevant to environmental management do you currently offer, or plan to offer in the near future?
2. For each of the courses listed above, please complete the table provided in the second page. Kindly use a photocopy of the table (if you are not using e-mail), for each additional course that you offer.
3. In your opinion, what additional qualifications, if any, are required in the field of environmental management?
  
4. The name of your institution and division or organization.

Thank you for your cooperation.

Yours faithfully

Sidwell Dingela (M.Ed. EE Candidate, Rhodes University).  
E-mail: [edsd@croc.ru.ac.za](mailto:edsd@croc.ru.ac.za)

**Question 2**

**Note:** EM. refers to environmental management  
NQF refers to National Qualifications Framework

Courses offered (or planned)	Qualification awarded upon completion of this course?	At which level of the NQF is course accredited, if at all?	EM. topics covered (Broadly)	What is the aim of the course, the target group, and for which occupations does it prepare learners?	Entry criteria, if any?

**Appendix 4.1.1: [Vumani's] Official job description**

River and beach control (includes beach-parking area).	<p>Snares.                      Bait digging control.                      Boat mooring and control.                      River notice boards.                      Fencing.                      Signs.                      Erosion.                      Surface.                      Bush, grass and weed control.                      Adequate refuse bins.</p>
Swimming area safety.	<p>Signs.                      Obstructions.</p>
River banks.	<p>Pollution.                      Bush and weed control.                      Walkways.                      Moorings.                      Controlling and closing of unauthorized paths.</p>
Dunes and conservation area.	<p>Prevention of slides.                      Dumping.                      Stabilize steep banks (to combat erosion).                      Sand removal.                      Vehicle prohibition.                      Bush control.                      Snares.                      Hunting.</p>
Town gardens and parks.	<p>Maintenance of gardens, lawns, trees, etc.</p>
Traffic and parking offences	<p>Direct flow of traffic especially in the peak periods.</p>
<p><b>Reports directly to Town Clerk.                      Weekly planning and progress report meetings with Town Clerk.                      Liaison with other departments regarding need for their services, e.g. gravel supply, building work.</b></p>	

#### **Appendix 4.1.2: Interview with Vumani**

What form does your reporting assume, and how often do you report?

*I submit written reports monthly.*

Why do you think you were offered the job?

*Because of qualifications I have in the field of nature conservation, I did quite a lot of conservation related courses with the Algoa Regional Services Council whilst I was in PE.*

Would you please explain to me how is your work situation today compared to the previous years, for example relations with senior staff, general workers and people of other races?

*The work situation is very bad especially with the white counter parts. I am not the only one who is experiencing this. But compared to the first time I got here things are much better. The senior conservation officer before this one was a very bad.*

Have you undertaken any training whilst with the Municipality? If yes, when and what were you trained on?

*None.*

If you never had training, why do you think that has been the case?

*I think because of little money budgeted for training, and courses for people in my field are very expensive and they will say they do not have money for that. There is money allocated for short courses but one will have to save money and pay for his fees if one needs to study good courses.*

The people that have worked with you, have they trained you informally? If they did what kind of training did they do with you?

*Yes they did train me. I was coached to pass my peace officers training. I also did some training in balancing diet for feeding marine animals and to lesser extent terrestrial animals. I had also had short training on tree identification.*

What is it that you like most about this institution and your job?

*I enjoy the company of people I am working with. Naturally I like working with both people and animals and have it all here.*

In terms of career where do you see yourself in the next five years?

*I will stay for as long as I can in this institution, because it is closer to my home and do not have to travel long distances to come back here. I might change my mind if I get a better offer elsewhere and feel that it's worth leaving the place.*

In that five years time do you think you would have undertaken any training or studies? If yes in what field and why?

*I would like to get a course that will give me enough background in my field, for example knowledge about some plant species. More like the general introduction to environmental management, I would like to maintain my interest in this field. I also like working with young people of school going age, I do not know if I might do some education related training. But most importantly I would like to study until I get a degree.*

What kind of training would you say you are in urgent need of and why?

*There is no specific training or crash course that I need or can think of. I need long-term training in environmental management especially basic training. I might consider environmental law later on as my job requires understanding of laws.*

### **Appendix 4.1.3: Advertisement of the Position of Senior Nature Conservator**

#### TRANSITIONAL LOCAL AUTHORITY

#### VACANCY: NATURE CONSERVATION/ TOWN RANGER

Applications are here by invited from suitably qualified and competent persons for appointment in the above-mentioned position.

#### QUALIFICATION REQUIREMENTS

Matric/ Std 10 plus knowledge of the appropriate legislation, i.e. Nature Conservation Ordinance; Sea Fisheries Act. Applicants will also be required to be registered Peace Officers in terms of the Criminal Procedure Act and in possession of a valid code 8 drivers license. The incumbent will be responsible for law enforcement in the town (e.g. By-laws passed by the council, etc.)

#### SALARY

The salary will be in accordance with post level six of a grade 3 Local Authority.

#### DUTIES

Duties will include, inter alia, the control of nature reserves, beaches, rivers and enforcement of the appropriate Nature Conservation Laws and issuing of fines. The incumbent will also be responsible for the general Town Ranger's functions and the dredging operations.

#### BENEFITS

Membership in Pension Fund, Medical Aid, Annual Bonus and Annual Leave

Application with complete CV's marked "confidential" must reach the undersigned on or before Tuesday 20<sup>th</sup> April 1999 at 12h00. If you do not hear from us by 1 May, you may consider your application as unsuccessful.

Council reserves the right, in the application of its sole discretion, not to appoint any applicant. No late applications will be considered.

#### CHIEF EXECUTIVE/ TOWN CLERK

NOTICE NO. 12/99

#### **Appendix 4.1.4: Interview with the Acting Town Clerk (Town Treasurer)**

##### **INTERVIEW WITH ACTING TOWN CLERK (TOWN TREASURER)**

This interview was scheduled to shed light on some policy issues that affects Vumani's employment situation. Most importantly to try and find out what the institution has to say about his job. Due to the fact that the actual town clerk was out of town, vital information regarding policy on training and affirmative action could not be obtained. The acting town clerk made reference to a number of legislation, interpretation of which will be done on the discussion chapter.

How would you describe Vumani's position (post) within the institution, does it have any traces of affirmative action on it?

*I cannot comment on that one because Vumani does not work under me and therefore cannot help you. What I do know is that all TLCs are signatories of the national agreed upon Affirmative Action Policy. They (TLCs) also have to abide by the Employment Equity Act.*

How much do you allocate in your budget towards training, who benefits on that and how is that benefiting arrived at?

*Now I do not understand what that has to do with your visit, as far as I know you are here to observe what Vumani does. Would you care to enlighten me on how this relates to your visit? (The purpose and nature of my visit was explained to the satisfaction of the Acting Town Clerk). We pay an amount of R3 000.00 to the local government board that then undertakes training of our employees.*

Who decides on whom has to go for training and how is that arrived at?

*I am sorry you will have to wait until the town clerk is back to get that information; he deals with those kinds of things. As far as I know there is very little that is taking place.*

In the town's residential areas, when it comes to maintaining good environmental standards, which area is to your strength and vice versa?

*The TLC is largely guided by the ratepayers trust/ association including the Department of Environment and Tourism Affairs. The latter dictates what kind of development is permissible in terms of the minimum impact regulations. Environmental Impact Assessments are enforced. Previously those kinds of decisions we taken by local communities.*

How much does tourism contribute in the municipal cash flow?

*The town has got two kinds of tourists. One category comprises of those people who have holiday houses here, they are wealthy and when they come down they spend serious money in the town. The other category is that of yuppies who come down here mainly to do drugs. They do not spend much money in town and are rather a problem.*

Your feelings on the destruction of coastal (indigenous) vegetation to make way for residence.

*(Reserved)*

What rationale could you offer me for such a decision as both the Town Treasurer and senior official of the in the municipality?

*The section of the reserve you are referring to used to be a Caravan Park. It is privately owned and the owner has full property rights. He decided to sell the land, and that is when he started to cut it into small plots. There is an agreement that he signed about maintaining the environmental integrity of the area, but as I said the decision to develop the area was made by the owner and not us.*

What is your major revenue draw card?

*The town's properties are quite high and that is where the town benefits most.*

Has there been any research done by Rhodes University in your institution? If there is, are you able to recall the focus of topic and maybe the time it was conducted?

*I won't know that one; it's barely three years I have been with this institution.*

Is it possible to have a copy of the town's conservation of natural resources or areas by-laws?

*I have never seen hard copy of the town's by-laws, you can try your luck with the government gazette but I doubt that you will find something.*

What institutional policies on affirmative action and environmental education policy?

*The town clerk will probably be the best person to tell about those, I do not know if we have institution specific policies on those.*

Who is supposed to draft environmental education/awareness programs and what are the chances of having such a programme endorsed and financed?

*Chances of such being financed are nil. You see, our main focal area is in the management of our local parks and gardens. That is all we can do, outreach programs like those are the role of the provincial government.*

What do you think of Vumani's professional capabilities in his division?

*I cannot comment on that one.*

Do you regard him as an asset to the institution?

*I will not comment on that one either.*

#### **Appendix 4.1.5: Interview with the Second Assistant Nature Conservator**

This interview was conducted mainly to see if Vumani's situation is unique to other situation. But the information shed by the interview has been very good. Even more so that the interviewee worked in Vumani's position before.

What qualifications have you got?

*I studied up until standard nine and worked where Vumani is now working for ten years from 1987 to 1996. I have a code ten driver's licence as well.*

How long have you been with this Municipality? Have you undertaken any formal training since you joined the institution and what were you trained on?

*I have been working here since August 1996 and have been occupying the post of an Assistant Nature Conservator. I am currently trying to pass my Peace Officers exams. When I was told I failed on the previous attempt, I did not believe that.*

*Our instructor was very racist. But that will not deter me; I have dealt with racist people before, especially when I was in my previous job. I will try the test again until I pass it.*

Would you say that you have got adequate institutional support here that you had with your previous employers?

I am treated like a human being by the office and fortunately have got a very sympathetic senior who tries his best to share knowledge with me. I am learning a lot.

What institutional support do you value most?

*I like the way in which we are relating with my senior (a young black just out of college conservator) and the information we share which is informal way of training me is one thing I value most.*

What changes would you suggest/need to be able to your job better?

*I would be happier if labour supervision could be taken out of my duties. It is very strenuous and moreover it strains my relationship with the community. People think that I am being tough on them or being bossy whilst I am also carrying out orders. Some even think that shining myself to the white seniors by making them work hard.*

Are you planning to study further? If yes on what field and why?

*Yes I am planning to study further. But the main thing now is to pass this peace officers exams. The TLCs have got an emphasis on this training as it enables you to arrest and cease any property suspected of being legally obtained in the TLCs managed natural resources areas.*

Out of ten how much would you say you know about constitutional rights/ by-laws? (Due to the complicated nature of this question I had to make an example which focused on search and seize of suspected people and goods) He obtained 7 out of 10 to my judgement, which is fairly good.

How is your relationship with the general folk, any best or worst stories to tell?

*The office environment is very good. The relationship with the workers is straining and I suspect it is because I am black. The community is crossed with me, as sometimes I have to arrest them when they poach. Them claim that I should know better about their plight as they are poor, but I guess that is two way, as they have to understand that I am doing my job in upholding the law.*

What do you enjoy most about your job?

*Working with nature, I love working in the wild.*

When I concluded the interview, the officer went to show me his office as we held the interview in the boardroom. He made told me about the work he was doing that day: trimming trees using a chainsaw. I took the opportunity to quiz him more about the work he just finished. I was very shocked to learn that he is not provided with protective clothing. To top it all he was never sent for training in the efficient and safe use of chainsaws.

He was using the chainsaw to cut branches that are above shoulder height, which is a very dangerous thing to do. He is only provided with a hard hat and normal overalls. A kick back or chain snap on that saw could leave him dead. I have noticed the lack of training by the unclean condition of the saw including a slack (very slack) chain.

I was saddened by the fact a municipality cannot afford a two-day training course in the use of chainsaw, which in most cases is provided with the purchase. If sending someone for training for using dangerous equipment, doing so for personal growth is as distant as the stars. I could not help but think or conclude that the life of a person who is operating the saw must be regarded as being cheap.

**Appendix 4.1.6: Official job description of the second Assistant Nature Conservator.**

**NATURE AND CONDITION OF WORK**

<b>SUMMARY OF FUNCTION</b>	<b>% TIME</b>
Supervision of labour	<b>30</b>
Squatter control	<b>20</b>
Control horticultural activities	<b>10</b>
Control and supervision of life guards	<b>8</b>
Assist in environmental education	<b>5</b>
Patrol of river by boat	<b>5</b>
Maintenance of machinery and municipal areas	<b>3</b>
Development and maintenance of hiking trails	<b>3</b>
Public relation	<b>3</b>
License of 4x4 and boats	<b>3</b>
Attend municipal meetings	<b>3</b>
Removal of trees in river	<b>3</b>
Training and motivating labour	<b>3</b>
Controlling dogs and animals	<b>1</b>

### **Appendix 4.2.1: [Zweli's] official job description**

**JOB TITLE:** Specialist: School/ community Garden Project

**REPORTS TO:** Director

**EFFECTIVE FROM:** 16 March 1999.

**MAJOR FUNCTIONS:** Co-ordinates the School/ Community Gardens Programme

**TRAINING REQUIREMENT:** Grade 12; Permaculture training; 2 to 3 years training NGO experience; about 5 years CBO experience; verbal and written communication skills; about 2 months on-the-job training

#### **RELATIONSHIP WITH OTHERS:**

**With in the organization:** All departments

**Outside the organization:** Local NGO coalition\*, Local education institute\*, other NGO's and CBO's involved with school and community gardening projects, schools

**SUPERVISES:** N/A

#### **KEY PERFORMANCE AREAS (K.P.A'S)**

Prepares progress reports on school projects  
Attends meetings in the community  
Liaison with schools on projects  
Assist with Xhosa meals when required  
Facilitates 'Business Skills' courses  
Liaison with community organization for training

**AUTHORITY LIMITS:** N/A

**SPECIAL WORKING CONDITIONS:** N/A

#### **COMMENTS:**

\* Names of organizations withheld.

## **Appendix 4.2.2: [Zweli's] previous official job description**

**JOB DESCRIPTION FOR:** (A) Co-ordinator of Home Food Gardens/ (B) Fieldworker/ (C) Xhosa Meals Guide

**DATE: SEPTEMBER 1997**

Your job covers several levels of responsibility – overseeing functioning of the Home Food Gardens project; field-working duties; tour-guide for Xhosa meals; managerial functions within the broader organizational structure.

### **OBJECTIVES OF YOUR JOB:**

(A)

to co-ordinate the development process associated with the Home Food Project;  
to encourage the community to see the importance of and participate in home food production and greening;  
to expand the Home Food project in keeping with the broader aims of the organization as a whole;  
to create and maintain an information base relevant to the Home Food Project

(B)

to open and maintain communication channels with communities and relevant organizations to provide information for the functioning of the organization

(C)

to facilitate Xhosa Meals through participation as guide and overseeing aspects of Xhosa Meals

### **MANAGERIAL ROLES**

Supervising staffing development in your department, with particular attention to staff morale, motivation, training, fulfilling of commitments and responsibilities. You will keep a separate staff file including copies of contracts, job descriptions and letters of employment.

Providing support and guidance for Nursery Supervisor, HF Project Monitors, and secretary.

Providing a link between the staff of the training center and the Executive committee.

Assist with the selection of homes for the tourist visits, as well as oversee organization of sales (including floats, post cards, tapes, etc.)

Fulfil your functions and duties as member of the Executive Committee as needs arise and are defined by this committee.

### **YOU WILL BE RESPONSIBLE FOR:**

Planning, in conjunction with the Director and staff of the Home Food Project, long and medium term objectives for the department.

Oversee planning of implementation and execution of these objectives (short-term plans).

This includes:

- Planting programs
- Workshop programs
- Maintenance of equipment and property
- Materials and equipment required
- Oversee budgeting by members of the department, including:
- Nursery purchase and running expenses
- Garden monitor's activity budgets (including plans for special activities)
- Provide the fundraiser and administrator with required budgets
- Budgeting; estimates costs, draw up budgets with the fundraiser for funding.
- Monitor cash flow; income and expenditure.
- Report financial information to the organization management.
- Oversee the keeping of records of stock and equipment, purchasing, sales, repairs, distribution of equipment (i.e., use off the property)
- Planning and co-ordination of activities at the training center (this includes keeping of records of the use of facilities by outside parties).

## **REPORTING**

You report to the Director and the management forum regarding your department.

You report to the executive committee regarding your supervision of the staff at the training center and Xhosa meals.

You will be responsible for submitting written report on your department's activities to the trust every two months.

## **EVALUATION**

You will be involved in evaluating your department and your work from time to time according to the organization participatory evaluation programme which is needed to provide information for development of the project and for reporting to funders.

**Appendix 4.3.1: [Dinga's] official job description**

**Performance management (Management)**

**1. Salary number [000121312]**

Name: [Dinga].

Job title: Operations Head

**2. Planning agreement (outputs, competencies and development)**

Performer

Date 1999/05/20

Promoter

Date 1999/05/

Promoter's promoter

Date

**3. Quarterly feedback**

	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter
Performer			
Date			
Promoter			
Date			



**Output plan:**

Actual performance	Deliverables (indicating quality requirements)	Actual Performance	Assessment
1. Implemented Business Plan	Align and compile regional business plan based on CS direction by 1999-04-14		
	Operationalise business plans to grade 7 level by 1999-05-30		
	Implement Business Plan according to set dates within plan		
	Develop and cascade performance scorecards by 1999-05-30		
	Compile monthly performance scorecard as per set dates		
	Do quarterly business plan reviews		
2. Managed Performance of Section/Area	Obtain technology management plan by 1999-10-15		
	Implement technology management plan by 1999-10-31		
	Ensure that at all times restoration is performed according to the TBI policy		
	Implement CS maintenance assistance policy 2 weeks after receipt		
	Align roles and responsibilities with new I/E 195 policy 2 weeks after receipt		

	Execute all projects as scheduled in order to meet negotiated PM required dates		
	To provide 48766 copper leads (E + V sides) by 2000-03-31		
	To contribute 28653 to usable leads by 2000-03-31		
	To complete 232 sites for WLL by 2000-03-31		
	To complete 90 % of all projects on committed customer dates		
	To provide 67850 sheath m of the national transport layer by 2000-03-31		
	To provide 42000 sheath –m of the regional transport layer by 2000-03-31		
2. Managed Performance of Section/Area	To provide 44000 sheath –m of access related miscellaneous fibre by 2000-03-31		
	To complete 85% restorations within 48 hours (copper > 400 pair)		
	Complete budget projections (P1,2,3) on a quarterly basis		
	Compile operational budget and capital requirements for 2000/2001 by 99-09-30		
	Finalize 2000/2001 budget with projected monthly expenditure trends by 2000-03-31		

	To monitor performance to operational budget on a monthly basis		
	To stay within 5% of operational budget by 2000-03-31		
	To reallocate R20,953 309 capital labour by 2000-03-31		
	To reallocate R5,600 760 vehicle cost by 2000-03-31		
	To track actual expenditure to budget on miscellaneous services not exceeding R81,348 by 2000-03-31		
	To track actual expenditure to budget on stores & material not exceeding R843,548 by 2000-03-31		
	To track actual expenditure to budget on direct purchases not exceeding R4,306 992 by 2000-03-31		
	Identify risk areas by 1999-05-26		
	Implement risk management plan by 1999-06-30		
	Monitor risks on a monthly basis		
	Identify surplus/obsolete tools and test equipment by 1999-05-31		
	Capture all assists on database by 1999-09-30		
	Update and maintain asset register on a monthly basis		
	Implementation of the Quality management plan as per specified dates within plan		
	To reduce the % rejections by CTS on copper to 1%by 2000-03-31		
	To reduce the % rejections by CTS on optic to 0%by 2000-03-31		
	To reduce the % rejections at site hand over to CNO (WLL) to 5% by 2000-03-31		

	To reduce the % rejections during CS quality inspections based on faults found to 5% by 2000-03-31		
	Measure performance on quality on a monthly basis		
	Compile action plan to address customer concerns by 1999-07-31		
2. Managed Performance of Section/Area	Implementation of customer improvement plan according to set dates/frequencies within plan		
	Analyze the next customer satisfaction report one month after receipt		
	To achieve 95% customer satisfaction in the next measurement (Sep. 99)		
	Implement productivity management plan as per specified dates within plan		
	Measure performance to productivity on a monthly basis		
	Implement new contractor management M & P's by 1999-07-31		
	To complete 95% of the contractor management concept by 2000-03-31		
	Assist with the finalization of material management (phase 1 CMC) by 1999-06-30		
	Assist with the implementation of the cost tracking strategy as per specified dates in plan		
	To complete 80% of the CMC concept by 2000-03-31		
3. Implemented conducive environment	Map all staff against training profiles by 1999-06-30		
	Identify training requirements based on mapped profiles and send through to CFL by 1999-07-15		

	Ensure the scheduling of training by 1999-07-31		
	Implement training as per schedule		
	To spent 8% of available mandays on training by 2000-03-31		
	To train 165 employees by 2000-03-31		
	Compile Personal Developments Plans for all direct supports by 1999-05-15		
	Monitor performance to training plan on a monthly basis		
	Implement customized Human Resource plan as per specified dates within plan		
	Monitor actual headcount on a weekly basis		
	To manage down headcount to 775 by 2000-03-31		
	Analyze trends on information gathered form exit interviews on a quarterly basis		
3. Implemented conducive environment	Implement communication strategy as per specified dates within strategy		
	Fill all vacancies 3 months after approval		
	Implement all approved systems 1 month after receipt		
	Implement all reviewed M & P's 1 month after receipt		
	Perform audits to check for consistency on new concepts and m & P's two months after implementation		
	To achieve 100% compliance to CMC		
	To achieve 100% compliance to CMAC		
	To achieve 100% compliance to quality management		
	To achieve 100% compliance to safety management		

	To achieve 100% compliance to productivity management		
	To achieve 100% compliance to training management		
	To achieve 100% compliance to construction practices		
	To achieve 100% compliance to financial management		
	To evaluate 100% of all suggestions by 2000-03-31		
	Implement the safety management plan as per specified dates within plan		
	Measure performance to safety on a monthly basis		
	Identify all spare resources by 1999-06-30		
	Do resource balancing on a six monthly basis		
	Scrap /sell obsolete resources via logistics on a 2 monthly basis		
	I/E 6 all surplus material 2 weeks after completion of a project		
	Determine short term functional composition shortages and needs by 1999-05-31		
	Compile a area short term strategy in terms of functional composition by 1999-06-30		
	Implement short term strategy according to set dates within strategy		
	To achieve 75% factory capacity mix by 2000-03-31		
	To reduce the % informally trained jointers to 30 by 2000-03-31		
	To do 80% jointing in-house by 2000-03-31		
	Implement BEEP policy by 1999-07-31		

	Ensure that all staff to grade 7 are trained in finances by 1999-08-31		
	Implement new financial M & P's 2 weeks after receipt		
4. Implemented AA plan	Compile projected AA achievements on all levels by 1999-04-40		
	Implement accelerated AA plans according to set dates within plan		
	Monitor performance to plan on a monthly basis		
	To achieve 37% AA on grade 8 by 2000-03-31		
	To achieve 60% AA on grade 9 -10 by 2000-03-31		
	To achieve 37% AA on supervisory level 2000-03-31		
	Implement gender strategy as per set target dates within strategy		
	To achieve 15% gender on operational level by 2000-03-31		
	To spent 5% of available mandays on AA training on a monthly basis		
	To spent 75% of training on AA training on a monthly basis		
	Observe individual performance on a regular basis		
	Perform quarterly coaching/feedback sessions		
	Assess performance on a annual basis (2000-03-31)		

**Development plan**

Competency (Also indicate required level)#	Initial Level *	Development action	Target date	Comments on development actions (Was development successful?)	Assessment*
Administrative	B	Get acquainted with all administrative procedures required by the job	99-03-31		
Business Principles	B	Develop knowledge of business, financial and budget process	99-03-31		
Financial Management	B	Basic financial management training	99-03-31		
Policy and Legislation	B	Get acquainted with company policies and legislation on health & safety and labour	99-03-31		

#Basic      \*5 = Fully developed. Intermediate      3 = Partly developed. Advanced      1 = Significant development require

**Appendix 5: Courses and qualifications currently on offer in South Africa in the field of environmental management**

**SHORT COURSES IN ENVIRONMENTAL MANAGEMENT RELATED FIELDS**

**Environmental Impact Assessment**

Level and qualification obtained	Duration	Costs (R)	Topics Covered
Certificate of Attendance Level 5 (not accredited)	3 - 5 days	R2700.00 to R3000.00	<ul style="list-style-type: none"> <li>• Principles of sustainability</li> <li>• Ecological impact assessment</li> <li>• Social impact assessment</li> <li>• Environmental management systems</li> <li>• Environmental audits</li> <li>• Public scoping and involvement</li> <li>• EIA methods.</li> <li>• Constitutional and legal background</li> <li>• Handling of documentation</li> <li>• Shortcuts and design aids</li> <li>• Practical application and field visits</li> </ul>
<p>Aim: To meet the needs of managers as per the challenges of the latest regulations regarding environmental management and development. Entry requirement: Relevant work context and interest.</p>			

**Environmental management systems (EMS)**

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
Attendance certificate Level 5 (not accredited)	4 days	R4000.00	<ul style="list-style-type: none"> <li>• The need for EMS</li> <li>• What is EMS</li> <li>• Existing EMS standards</li> <li>• Interpretation of the SABS/ ISO 14001</li> </ul>
<p>Aims: To help synergies the process of EMS development, implementation and monitoring by companies and government as it is now a legal requirement to have one in place Entry requirements: Relevant work environment</p>			

### Water Quality Management

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
Attendance certificate Level 5 (not accredited)	5 days	R4 000. 00	<ul style="list-style-type: none"> <li>• Basic principles of water flow</li> <li>• Water management principles</li> <li>• Biological and chemical water quality</li> <li>• Aquatic ecosystems</li> <li>• Water purification</li> </ul>
Aim: To provide attendants with a basic understanding of water quality management Entry requirement: Relevant work situation and those that are interested.			

### Environment Risk Assessment

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
Attendance certificate Level 5 (not accredited)	5 days	R4500.00	
Aim: To empower employees to conduct ERA in their work situation or evaluated those that have been contracted out to consultants Entry requirement: Relevant work context			

### Environmental auditing

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
Attendance certificate Level 5 (not accredited)	5 days	R4600.00	<ul style="list-style-type: none"> <li>• Introduction to ISO 14001 and Environment management</li> <li>• Principles of environment management</li> <li>• Environmental auditing</li> </ul>
Aims: To offer participants qualification in the field of environmental auditing, after which a student is qualified and auditor in training Entry requirements: Relevant work environment and those interested			

**Managing conflict – public involvement in environmental impact assessment**

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
Attendance certificate Level 5 (not accredited)	3 days	R3500.00	<ul style="list-style-type: none"> <li>• Conflict management</li> <li>• Environmental impact assessment regulations</li> <li>• Implementing public involvement</li> <li>• Public involvement</li> </ul>
<p>Aims: The course is aimed at preparing participants to optimally use the public involvement process as it is an integral part of environmental impact assessment                      Entry requirements: Relevant work environment and those interested</p>			

**Environmental Management for Environmental Health Officers**

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
Certificate Level 6 (Accredited)	5 days		<ul style="list-style-type: none"> <li>• Environmental management systems</li> <li>• Policy auditing</li> <li>• Environmental law</li> <li>• Rehabilitation</li> <li>• Philosophy</li> <li>• Environmental impact assessment</li> <li>• Integrated environmental management</li> <li>• Strategic environmental assessment</li> </ul>
<p>Aims: Enhance environmental health officers training by making up for what is currently left out of their curriculum.                      Entry requirements: Diploma in Environmental health or reasonable experience</p>			

### Safety and health for environmental managers

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
Attendance certificate Level 5 (not accredited)	4 days		<ul style="list-style-type: none"> <li>• Introduction to health and safety</li> <li>• Stress factors and risks</li> <li>• Legal requirements and issues</li> <li>• Common law and safety issues</li> <li>• Basic philosophy underlying health and Safety</li> </ul>
<p>Aims: To enable both public and private sector managers to make good decision about location Industrial or commercial premises. Entry requirements: Relevant work situation and those interested.</p>			

### Handling, Storage and Transportation of hazardous goods

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
Attendance certificate Level 5 (not accredited)	5 days		<ul style="list-style-type: none"> <li>• Orientation to the concept and origin of dangerous goods</li> <li>• International legislation and implications to South Africa</li> <li>• Environmental impact of dangerous goods</li> <li>• Warehousing of dangerous goods</li> </ul>
<p>Aims: Enable good planning and handling of dangerous goods by those using them on day-to-day basis Entry requirements: Relevant work experience and those interested</p>			

### Environmental awareness

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
Attendance certificate No specified Level (not accredited)	3 days		<ul style="list-style-type: none"> <li>• Pollution in general</li> <li>• Overgrazing</li> <li>• Water conservation</li> <li>• Greenhouse effect</li> <li>• Soils</li> <li>• Indigenous trees/ plants</li> <li>• Ozone layer</li> <li>• Erosion</li> <li>• Bad harvesting practices</li> </ul>
<p>Aims: To make forestry workers aware of the environment and point out good and bad Practices in their work situation. It prepares the forestry worker to perform environmental friendly in his job Entry requirements: None</p>			

### Introduction to environmental management

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
Attendance certificate Level 5 (not accredited)	4 days	R3500.00	<ul style="list-style-type: none"> <li>• Air quality management</li> <li>• Environmental management principles</li> <li>• Ecosystem structures and response</li> <li>• Water quality and quantity management</li> <li>• Waste management (general)</li> <li>• Hazardous and radio active waste Management</li> <li>• Land quality management and rehabilitation</li> <li>• Environment management tools</li> <li>• Noise abatement and management</li> </ul>
<p>Aims: To enable integrated and sound environmental management in both private and public sector as per the requirement of statutes Entry requirements: Relevant working environment</p>			

### **Resource evaluation and veld management for sustainable game production**

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
Attendance certificate Level 5 (not accredited)	3 days		Not supplied
Aims: To orientate wildlife managers to the latest theories and methods in habitat evaluation and management for the purpose of optimizing resource utilization within the framework of long term sustainability. Entry requirements: Those who are game managers, reserve managers and game farmers			

### **Environmental management of natural and cultural resources**

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
Attendance certificate Level 5 (not accredited)	3 days		Not supplied
Aims: To provide practitioners with the recent legal developments concerning the topic Entry requirements: Practicing environmental consultants, planners, managers and officials of preservation related landscapes.			

## DIPLOMAS IN ENVIRONMENTAL MANAGEMENT RELATED FIELD

### National Diploma in Civil Engineering

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
National Diploma Level 5 (not accredited)	1 year		<ul style="list-style-type: none"> <li>• Environmental management as it applies to civil engineering</li> </ul>
Aim: To produce technicians qualified in the field of civil engineering Entry requirement: Grade 12 with Math and Physical science			

### Environmental health

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
Diploma Level 5 (accredited)	1 year		<ul style="list-style-type: none"> <li>• Waste management</li> <li>• Water quality</li> <li>• Air pollution</li> </ul>
Aim: To ensure understanding, equip skills in implementation and management of the environment to support and sustain good health Entry requirement: An FET certificate/ diploma or relevant work situation			

### Environmental health

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
B Tech Diploma Level 6 (accredited)	1 year		<ul style="list-style-type: none"> <li>• Waste management</li> <li>• Water quality</li> <li>• Air pollution</li> </ul>
Aim: To ensure understanding, equip skills in implementation and management of the environment to support and sustain good health Entry requirement: An FET certificate coupled with relevant experience or a diploma			

### Environmental management

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
National Diploma Level 5 (accredited)	2 years		<ul style="list-style-type: none"><li>• Waste management</li><li>• Water quality</li><li>• Air pollution</li><li>• Environmental chemistry</li><li>• Resource management</li><li>• Environmental management</li><li>• Micro biology</li><li>• Communication</li><li>• Statistics</li><li>• Computer skills</li><li>• Waste management</li><li>• Geology</li><li>• Environmental economics</li><li>• Entrepreneurial skills</li></ul>
<p>Aim: To ensure understanding, equip skills in implementation and management of the environment to support and sustain good health Entry requirement: An FET certificate coupled with relevant experience or a diploma</p>			

## ADVANCED DIPLOMAS AND DEGREES IN ENVIRONMENTAL RELATED FIELDS

### Environmental health

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
M Tech certificate Level 7 (accredited)	1 year		<ul style="list-style-type: none"> <li>• Waste management</li> <li>• Water quality</li> <li>• Air pollution</li> </ul>
Aims: Research methods of improving on available knowledge and technology Entry requirements: B Tech or relevant degree			

### Environmental health

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
National Diploma Level 5 (accredited)	1 year		<ul style="list-style-type: none"> <li>• Environmental Management Systems</li> <li>• Environmental policy</li> <li>• Environmental auditing</li> <li>• Environmental law</li> <li>• Rehabilitation philosophy</li> <li>• Environmental Impact Assessment</li> <li>• Strategic Environmental Assessment</li> <li>• Integrated Environmental Management</li> </ul>
Aims: Enhance Environmental Health Officers training (make up for what is currently left of curriculum) Entry requirements: Practicing environmental officers.			

### Environmental management

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
B. Tech. Level 6 (accredited)	1 year		<ul style="list-style-type: none"> <li>• Environmental management</li> <li>• Environmental resources</li> <li>• International trade</li> <li>• Production management</li> <li>• Environmental marketing</li> <li>• Rehabilitation</li> <li>• Eco Tourism</li> <li>• Individual project</li> </ul>
Aims: Not stated Entry requirements: Not stated			

### Environmental health

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
B. Tech. Level 6 (accredited)	1 year		<ul style="list-style-type: none"> <li>• Waste management</li> <li>• Water quality</li> <li>• Air pollution</li> </ul>
Aims: To ensure understanding, equip skills in implementation and management of the environment to support and sustain good health Entry requirements: Level Five			

### Environmental health

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
M. Tech. Level 7 (accredited)	1 year		Waste management Water quality Air pollution
Aims: Research methods of improving on available knowledge and technology Entry requirements: Level Six			

### Environment and society

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
MA/ MSc. Level 7 (accredited)	1-2 years		<ul style="list-style-type: none"> <li>• Environmental paradigms</li> <li>• Environmental governance</li> <li>• Environmental analysis, assessment and modeling</li> <li>• Environment and development</li> <li>• Environment and society</li> <li>• MA: Environment planning</li> <li>• or</li> <li>• MSc: Environmental change</li> <li>• Elective module</li> <li>• Group project</li> </ul>
Aims: Not stated Entry requirements: BA Hons/ BSc Hons.			

### Environmental economics

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
MSc. Env. Econ Level 7 (accredited)	1-2 years		<ul style="list-style-type: none"> <li>• Agricultural economics</li> <li>• Natural resource and agricultural economics</li> <li>• Advanced agricultural economics</li> </ul>
Aims: Not stated Entry requirements: B. Com Hons (with environmental economics as a major) or relevant degree			

### Environmental politics and diplomacy

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
M. Phil. Level 7 (accredited)	1-2 years		<ul style="list-style-type: none"> <li>• Diplomatic practice</li> <li>• Approaches, methods, and policy</li> <li>• Forecasting</li> </ul>
Aims: Not stated Entry requirements: Not stated			

**Environmental business management**

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
MBA Level 7 (accredited)	1-2 years		<ul style="list-style-type: none"> <li>• Environment as a field of management responsibility: policy and principles</li> <li>• Management issues, activities and environment</li> <li>• Environmental research, emerging and new business paradigms</li> </ul>
Aims: Entry requirements:			

**Environmental ecology**

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
MSc. Level 7 (accredited)	1-2 years		<ul style="list-style-type: none"> <li>• Environmental paradigms</li> <li>• Environmental governance</li> <li>• Environmental analysis, assessment and modeling</li> <li>• Populations and communities and temporal variability</li> <li>• or</li> <li>• Conservation planning and monitoring</li> <li>• or</li> <li>• Biogeography and macro ecology</li> <li>• or</li> <li>• Conservation in practice</li> <li>• Elective module</li> <li>• Group project</li> </ul>
Aims: Not stated Entry requirements: BSc. Hons.			

### Water resource management

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
MSc. Level 7 (awaiting registration)	1-2 years		<ul style="list-style-type: none"> <li>• Environmental paradigms</li> <li>• Environmental governance</li> <li>• Environmental analysis, assessment and modeling.</li> <li>• <b>Related skills yet to be determined to</b></li> <li>• <b>comprise three modules</b></li> <li>• Elective module</li> <li>• Group project</li> </ul>
Aims: Not stated Entry requirements: BSc. Hons.			

### Environmental law

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
LLM Level 7 (awaiting registration)	1-2 years		<ul style="list-style-type: none"> <li>• Environmental paradigms</li> <li>• Environmental governance</li> <li>• Environmental analysis, assessment and modeling.</li> <li>• <b>Related skills yet to be determined to</b></li> <li>• <b>comprise three modules</b></li> <li>• Elective module</li> <li>• Group project</li> </ul>
Aims: Not stated Entry requirements: LLB/ BA Hons (law)			

### Environmental health

Level and qualification obtained	Duration	Approximate Costs (R)	Topics Covered
MSc Level 7 (awaiting registration)	1-2 years		<ul style="list-style-type: none"><li>• Environmental paradigms</li><li>• Environmental governance</li><li>• Environmental analysis, assessment and modeling.</li><li>• <b>Related skills yet to be determined to</b></li><li>• <b>comprise three modules</b></li><li>• Elective module</li><li>• Group project</li></ul>
Aims: Not stated Entry requirements:			

