AN EXPLORATION OF ENVIRONMENTAL UNDERSTANDING AMONG PRIMARY HEALTH CARE PROVIDERS IN AN EASTERN CAPE COMMUNITY

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ABSTRACT

This study explores environmental understanding among the health care practitioners serving a rural community in the Eastern Cape Province in South Africa. During the preliminary phases of the research, the decision was made to adopt a participatory approach to the inquiry as far as was possible. Semi-structured interviews, participant observation and focus group discussions were the techniques chosen to focus the participants' thinking about: the meaning of environment, environmental issues and problems which impact on health, and, environmental education in practice.

Comparisons between the recently transformed health education idea proposed by the World Health Organization (WHO), known as "health promotion", and a popular environmental education model are made. It is argued that many of the obstacles to effective health education described by the participants in the study can be overcome by using environmental education/health promotion approaches.

The findings show that the health practitioners studied relate to a wide range of environmental issues with varying levels of engagement. They are influenced by changing values, their feelings about indigenous knowledge, and their notions about how people should respond to the environment. An urgent need for more and better communication among the different levels of health practitioners is identified. Finally, it is recommended that health care practitioners be supported with opportunities for professional development which can lead to a confident, self-reflective approach to health education.

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PREFACE

There are many individuals to whom I am grateful for helping me to bring this, the first fruit of my labour, to completion. Most important are the research participants, who, though anonymous, are real people who have shared their views on very real situations.

I thank my thesis supervisor, Professor Pat Irwin, and co-supervisor, Dr. Eureta Janse van Rensburg, for their insights and skilful guidance during the research process. Rhodes University has provided a supportive network which includes the Education Department administrators, library and academic staff; Financial Aid Office; main and East London Library and the Computing Centre. I was also fortunate to have been a part of my particular M.Ed. (Environmental Education) group.

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CHAPTER ONE

THE CONTEXT OF THE RESEARCH

> *The greater complex is never predicted by the parts of the lesser complex. Therefore, I surmise that to learn anything you must start with the whole - with universe.* —R. Buckminster Fuller

1.1. BACKGROUND TO THE RESEARCH

Nxaruni is a rural community, located north-west of East London in the Eastern Cape Province (Figure 1.1). In the 1970s and early 1980s, the residents of Nxaruni were scheduled for relocation to the Ciskei under apartheid segregation laws, but they resisted relocation with the support of strong residents' associations (Ainslee 1994). There resulted a period of extreme hardship for the community when Nxaruni, as an unincorporated "grey" area, was ineligible for public services, including health services, from either the Ciskei or the Republic of South Africa. According to Ainslee, the hardships were exacerbated by the poor condition of the soil on the lands used for farming. He described it as a fragile, shallow soil degraded by incorrect ploughing methods across contours, which together with prolonged drought, resulted in severe cases of soil erosion.

A health survey of Nxaruni conducted in 1982, reported statistics on infant mortality and the most common diseases suffered by the inhabitants. Nxaruni was surveyed as part of a large national project comparing health indicators for rural and urban areas. To quote from the report:

> The burden of ill-health is heaviest in the rural areas. There are few statistics that show this accurately, but two recent surveys of infant mortality in rural areas showed rates between 198 and 282 per 1000. This may be compared with infant mortalities ranging from 10 to 60

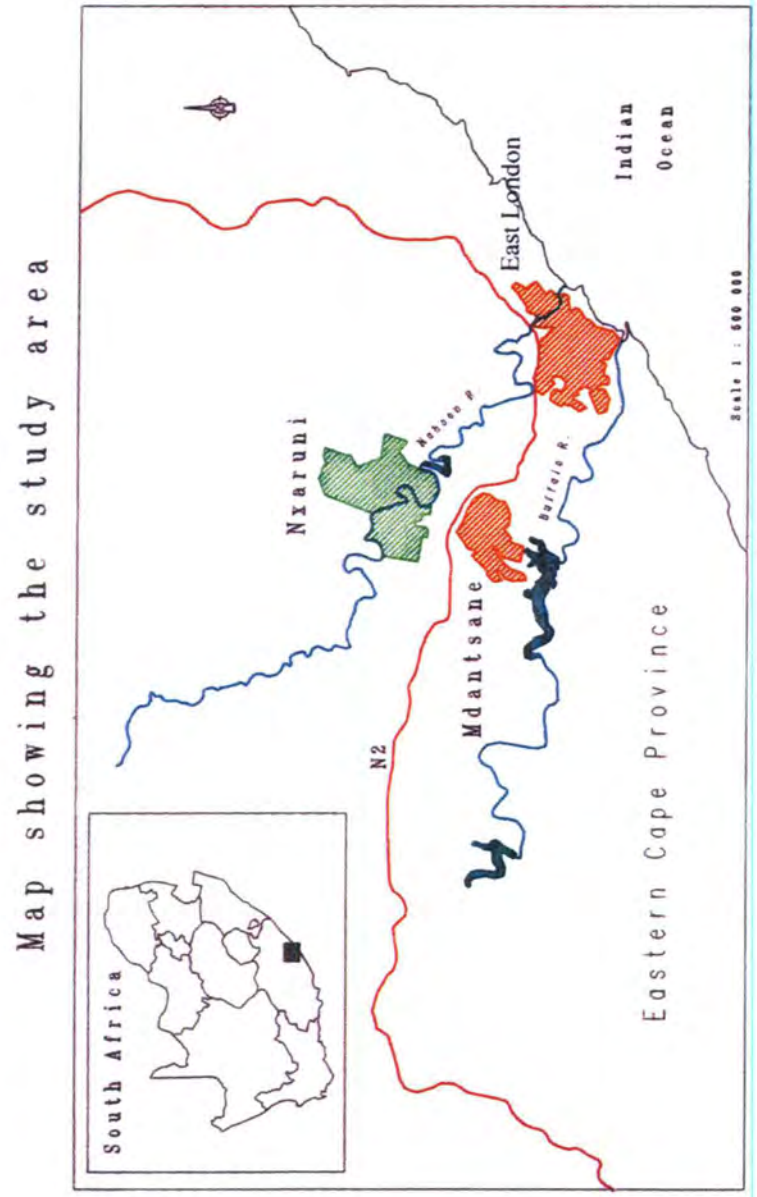

Figure 1.1 Map showing the study area in the Eastern Cape Province of South Africa

> per 1000[1] amongst populations living in large cities. The high mortality rates at an early age in the rural areas are mainly related to widespread under-nutrition and the spread of serious infectious diseases. Few people could deny that this heavy burden of ill-health is related to social and environmental factors (Health Care Trust 1982 :*i*).

The most common diseases of children aged up to twelve years were found to be chest infections, including tuberculosis (TB), malnutrition and gastro-enteritis (Thomas 1982).

Presently in Nxaruni, with an official population of 30 000, but unofficially as high as 50 000, public health services are available from one health centre, three mobile clinics and one satellite clinic, all staffed by three professional nurses and two nursing assistants. A medical doctor employed by the public health services is in attendance at the clinic once a week. As adjuncts to the professional staff are the twenty-one lay community health workers (CHWs) who make home health visits. The community health workers, who are local women chosen by the community, are trained by professional nurses in the local clinic and by nurses on the staff of a health and development non-governmental organization (NGO). Training of CHWs is based on international guidelines (UNICEF 1988; WHO 1978).

My idea to do research in the Nxaruni community originated with a request made to me by a representative of the community health workers in Nxaruni. She asked me to work with them on some environmental issues they regarded as a threat to their health. The issues were inter-related and had taken some time to develop: for many years, the community had been dissatisfied with the sour-tasting water supplied by boreholes, or the alternative of drawing water from rivers. Their response was a ten-year-long battle to convince the authorities to provide piped water. As was characteristic of this well-organized community, Nxaruni's residents' association meetings served as the forum from which all efforts were coordinated. Even outsiders, such as neighbouring farm owners, were invited to the meetings to share their expertise, and to offer

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[1] The current infant mortality rate for South Africa as a whole is given at 50/1000. However the rate is thought to be even higher among rural black populations (Pillay & Coovadia, 1998).

encouragement. Finally, in 1994, the water supply to most areas was completed and a festival was held to celebrate the people's success and to thank everyone from outside the community who had contributed.

Having water from standpipes was such an achievement that most people thought that the community's health would improve. Some residents, however, especially the community health workers, were aware that having a piped water supply would not mean the end to health problems. Indeed, they feared that their whole water supply was at risk of being contaminated. For during the previous six years, the population in Nxaruni had risen due to migration of people from farms into the older more established villages; and others establishing informal settlements in outlying areas that did not have piped water. Some of the newcomers practised the custom of burying a deceased family member, usually the head of the family, in the home kraal instead of using demarcated graveyards. It raised suspicion among many residents that there could be the risk of "something seeping from the corpses in the kraals into the water supply" (Anonymous resident pers. comm.). There was a fear that the "new" diseases being talked about at the clinic, such as AIDS and cholera, were caused by contaminated water. Residents were demanding action to prevent the spread of disease. The community health workers took up their cause. Their spokesperson explained to me the residents' view of the water issue as well as their conclusion, that in order to improve the situation they would have to somehow stop the kraal burials. At their invitation I gave a speech at the water festival in which I attempted to inspire the people to wise use of water. The speech disappointed some who had hoped I would use that opportunity to threaten dire consequences to those residents who continued their unsanctioned burial practices.

I had decided it would be futile to use my time at the podium to *tell* the people to change their behaviour and I suggested to a few key individuals rather that they look at the issues at stake more closely. I told them what I thought research could achieve and they wanted to be a part of it. I was already known to many in the community through my membership on the management committee of a privately funded primary health care and development agency; and as a lecturer

in a university nursing department. For the research, I decided to involve primary health care practitioners in exploring their understanding of environment. They became the research participants, both unqualified[2] and professionally qualified, and drawn from diverse fields: the public health services, non-governmental organizations, the community (grassroots) and the private sector (see Figure 2.1). All of the participants, including myself, are linked by a common goal: the improvement of health, particularly in Nxaruni.

1.2. THE AIMS OF THE RESEARCH

Health care practitioners, whose roles include health education, have diverse perceptions of health and environmental issues. When environmental problems arise in the community where they work, they are frequently uncertain about how to proceed, and frustrated in their role as health educators.

To respond to these problems, the research aimed:

- to explore, together with the participants, understandings[3] of the concept "environment" and to provide an opportunity for viewpoints to be articulated.

- to look at the ways the participants engage with environmental issues and make connections between the different aspects of the environment, particularly the social, political, economic, and biophysical or ecological aspects. This aim encompasses practical engagement as well as theoretical.

- to assess the influence of the participants' own training on their views.

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[2] Presently there is no formal qualification attainable for CHW-training.

[3] Understanding is conceived broadly to include interpretation, assumptions, beliefs and superstition, previous knowledge and experience.

It is hoped that the results from this study will be useful to the community to the extent that it will cause ". . .environmental issues to be placed on agendas within curriculum and community contexts . . ." (O'Donoghue 1993: 36). The relevant contexts are:

- the residents' general meetings which have the greatest representation of community members.
- the group of health professionals who write the teaching manuals used by local community health workers.
- policy makers and curriculum design strategists in the Provincial Health Department who with USAID members are currently developing training material for professional primary health care practitioners.

1.3 LITERATURE OVERVIEW

Throughout the research process I read widely in the following areas: the environmental crisis as it impacts on health; the roles of the different categories of health care practitioners; methodological issues (see 2.2); and, health and development issues in environmental education.

1.3.1 Health and Environment

The World Health Organization (WHO) has defined health as ". . .a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity." The WHO also stated that ". . .the ability to live harmoniously in a changing *total* environment is essential to the healthy development of an individual" (WHO 1975: 17) [emphasis added]. Although most countries had not yet achieved "satisfactory progress even in regard to major traditional health problems, such as communicable diseases, maternal and child health, and noxious biophysical environmental factors, including vectors of diseases" (*ibid*), the WHO predicted that greater demand would be place on public health resources to deal with the "new environmental challenges", namely social and economic factors which have an impact on the incidence of illness

(*ibid*). An example of what was meant by social and economic factors is the impact of poverty on malnutrition[4]. The idea of total environment is beginning to make sense to government public health service providers in many countries.

Internationally, numerous surveys have been published which measure mortality rates and prevalence of diseases attributed to biophysical environmental factors such as water pollution and poor sanitation (Eyles & Woods 1983; Sanders 1985; and, Ekins 1990). Midgley (1986: 51) comments that from a public health point of view ". . .it is evident that a much higher priority given to environmental services is likely to be an extremely cost-effective method of improving a nation's health."

In South Africa, some researchers have highlighted how the environment impacts on health. Savage and Benatar (1990: 147) argue that: "The health care system has failed to meet the needs of the oppressed and disadvantaged." The authors' conclusion is that illness and disease are better alleviated by changing the environment (specifically political and economic aspects) than by medical interventions. Wilson & Ramphele (1989) compiled information from more than 300 separate research studies into poverty in southern Africa which formed part of The Carnegie Inquiry into Poverty in Southern Africa (see next paragraph). Their aim was to contribute to the move to get poverty recognized and understood in southern Africa. Both Savage and Benatar's and Wilson and Ramphele's publications alert the reader to the relatedness of environmental and health needs of people.

Although people's needs regarding health and environment vary greatly from person to person, from community to community and between geographical locations, "...access to clean water and adequate food, housing, employment and good sanitation play decisive roles in determining the overall health status for a population" (Savage & Benatar 1990: 147-8). Most of the pre-1990 research focusing on environment and health issues was conducted by public health services, for

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[4] Malnutrition means incorrect or poor feeding, a condition which can lead to disease.

the purpose of obtaining information to use in planning and allocation of resources. In those days, the resources were unequally divided among the different racial groups in South Africa. In 1984 a privately funded investigation into poverty produced a multi-volume post-conference publication, The Carnegie Inquiry into Poverty in South Africa (SALDRU 1984). One of the papers relevant to my research because it describes early community health worker programmes in South Africa, is Hammond and Buch's (1984) evaluation of health education programmes in rural Gazankulu. In their research, they compare the number of pit latrines and the amount of litter observed in villages both with and without community health workers and find that the community health workers have no statistically significant positive effect on community development. They note with concern that the health education curriculum used in the villages they visited may not be relevant to the real needs of the community because it is based on ideas "imposed from outside". As I share their concern, I was fortunate to have as respondents in this study, the "inside" authors of the training manual for community health workers in Nxaruni (see Chapter 5).

1.3.2 Responses to the Environment and Health Crises

In South Africa until about 1992, the most effective responses to the health crisis was thought to be medical and nursing interventions decided on by the 1978 World Health Organization conference at Alma Ata, Russia. Following the launch of the concept of primary health care (PHC) at the conference, there was hope that the conference goal, "health for all by the year 2000", would be achieved (WHO 1978). Five years later, UNICEF (The United Nations Children's Fund) added a set of guidelines for improving child and maternal health.[5] Although the goal was that communities would ultimately take responsibility for their own health, the mechanisms for shifting the power focus toward the poor and disadvantaged were not clarified.

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[5] UNICEF wanted the principles of Alma Ata defined in such a way that *children* would benefit. However, most of the guidelines, known as GOBI-FFF (an acronym for growth monitoring, oral rehydration, breast-feeding, immunisation, family spacing, female education and food supplementation) limited interventions to those considered economically viable.

Critics of the Alma Ata Declaration on Primary Health Care (WHO 1978) regarded it as a tool whereby those in authority could make the decisions about which diseases needed to be eradicated, from which communities, and which educational approaches needed to be used (Timberlake & Thomas 1990; Wisner 1988a; 1988b). The favoured educational approach at that time was based on behaviourist assumptions, whereby an expert-derived health message would be transmitted to learners by health care practitioners. It is my opinion that health educators readily accepted this approach because it was the same approach that they had been taught during their training. That is, the training of health care professionals had long been based on the "medical model", a scientific view of the human being which is reductionist in philosophy. It purports that any illness has a direct physical cause, which once identified, can be treated by health practitioners applying the interventions, *viz* pharmaceuticals, they have been trained to administer. At one time, these approaches and reliance on scientific solutions to problems seemed to be successful. More recently, however, there has been a move away from such a mechanistic approach to health, toward a broader, organic view which includes many dimensions, as Capra explained below:

> The broad concept of health that will be needed for our cultural transformation - a concept that includes individual, social, and ecological dimensions - will require a systems view of living organisms and, correspondingly, a systems view of health (1982: 119).

Capra (1982) also argued that the WHO's definition of health (see 1.3.1.) formulated at the Alma Ata conference, was somewhat unrealistic in that it viewed health as something finite, as in a goal that can finally be reached. I am in agreement with Capra and believe that "health" is a concept which is embedded in the understanding of oneself and one's world. Furthermore, health may mean one thing to one person and something else to another, as will be seen in the results of this research (see 4.5).

Alma Ata's slogan, "Health for all by the year 2000 and beyond", raised world-wide expectations of what primary health care could achieve. It wasn't until 1986 that the WHO called an

International Conference on Health Promotion in Ottawa, Canada to work out a plan of action which could be used to realistically implement the goals of Alma Ata. The significance of the Ottawa conference to my research, is that it was there that a new approach to health education had its beginnings. It was named "health promotion" in order to differentiate it from the older term, "health education." "Health promotion" encompasses any activities people engage in to increase control over and to improve their health. As a sign of their intention, the conference delegates pledged:

- to move into the arena of healthy public policy, and to advocate clear political commitment to health and equity in all sectors;
- to counteract the pressures towards harmful [toxic] products, resource depletion, unhealthy living conditions and environments, and bad nutrition; and to focus attention on public health issues such as pollution, occupational hazards, housing and settlements;
- to respond to the health gap within and between societies, and to tackle the inequities in health produced by the rules and practices of these societies;
- to acknowledge people as the main health resource; to support and enable them to keep themselves, their families and friends healthy through financial and other means, and to accept the community as the essential voice in matters of its health, living conditions and well-being;
- to reorientate health services and their resources toward the promotion of health; to share power with other sectors, other disciplines and most importantly with people themselves;
- to recognize health and its maintenance as a major social investment and challenge; and to address the overall ecological issue of our ways of living.

(WHO 1986: 2)

These were collectively known as the Ottawa Conference Pledges. Two strategies decided on at Ottawa show commonalities with strategies decided on by the Rio Conference on Environment and Development's Agenda 21[6]: first, to create a supportive environment (recognizing that our societies are complex and inter-related, we need to encourage reciprocal maintenance whereby we take care of each other and our environment); and second, to strengthen community development activities. Sustainable development is the common denominator for both the environmental and public health action plans. The visions expressed in the two documents came to be reflected in environment and health research in South Africa, some of which will be reviewed here. Furthermore, the two documents were useful sources of key words which helped to direct my literature search towards the area of development.

From 1992 onward, the health promotion action approach recommended at Ottawa began to have an influence on health-related research in South Africa and elsewhere. This influence is evidenced by research done with communities; by the application of approaches and models from sectors other than health, such as sociology and economics; and by the subtle shift towards research to improve education and training of health professionals. But the methodologies used, such as questionnaire surveys, did not involve the health practitioners actively (H. Philpot pers. comm.). As part of my research, the underlying assumptions of the older "health education" approach and the newer "health promotion" approach were examined in order to assess their influences on the viewpoints of the participants in this study.

It is to be noted that the words "environment" and "ecological" appear in the pledges which formed part of the Ottawa agreement. Researchers have also acknowledged links between health and environment: that a healthy environment is the basis for health (Reddy *et al* 1995; Robottom and Colquhoun 1992). Jacobs (1988: *ii*) referred to environment as the "support system" for

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[6] The United Nations Conference on Environment and Development (UNCED) took place in Rio de Janeiro, Brazil in 1992. The conference, known as the Earth Summit proposed Agenda 21, a set of principles of commitment to work towards sustainable development world-wide (Wynberg 1993).

health. The thesis will not attempt to define the concepts "environment" and "health" nor to elaborate on the dialectic between environment and health. Rather, it will report on what the environment means to the research participants, which issues are raised and what environmental action is taken in response to our understanding of environmental problems.

1.3.3 Research with Community Health Workers

Once the community health workers' movement spread and became more widely known (Walt 1990), researchers began to encourage community health workers to share their experiences, feelings and opinions with them. Still, there are relatively few published studies eliciting the views of community health workers or giving them a voice. (See discussion of Lund's study below.) Because their voices have rarely been heard among the various levels of health care practitioners, I wanted to involve them. The researchers who have studied them, describe them as being outspoken about what they believe (Werner 1982). Their insights are important in my research because they are "on the ground" where the problems are being experienced..

Working in South America, Werner & Bower (1982) consulted with them extensively when designing a lay health worker ("barefoot doctors") training manual. Mametja, formerly of Alexandra Health Centre, and now of Valley Trust, was another who sought the input of community health workers in research. His situational analysis (1993) used focus groups and individual interviews with community members (consumers), health care practitioners of all categories and public health service providers, to explore their views of the quality of health services in four sample communities. Environmental problems were viewed holistically by the respondents in his study. He had the widest representation of role-players of any study done in South Africa, including the seven categories of health workers (see Fig. 2.1) who participated in my research.

Turning to research done in the Eastern Cape, my literature search has yielded no local studies focusing on environment as understood by health care practitioners. However, three local studies

by Fourie (1988), Segar (1992), and Lund (1993) explored with health care practitioners other aspects of their work, *viz*: the perceptions of both community health workers and professional nurses on their roles in the primary health care team; how they regard each others' roles; their views on the training and remuneration of community health workers; and what they perceive to be the obstacles they are faced with. These three studies provided valuable information about the relationship between lay and professional health care practitioners. Drawing on these studies I structured the research in a way that gave each person a voice.

1.4 THE INFLUENCE OF ENVIRONMENTAL EDUCATION RESEARCH

Environmental education research has contributed to this study in many significant ways. My understanding (based on O'Donoghue and Janse van Rensburg, 1995) is that environmental education is a participatory process of social change, using teaching and learning methods which enable us to address a wide range of eco-social issues to achieve sustainable living in a healthy environment. The environmental education process (approach) which I believe would provide an opportunity for health care practitioners to transform their teaching is aptly described by Stevenson (1987), paraphrased by Fien (1993a: 59), as:

> . . .Provid[ing] opportunities for students to participate actively in maintaining and improving the environment through the critical appraisal of environmental situations and issues, the development of an environmental ethic and the understandings, motivation and skills to act on their values and commitments.

The papers I reviewed were mainly those papers in which the research methodology was one I wanted to adopt; those which reflected a similar conceptualization of environmental education to mine; and those which involved similar study sample groups. My approach was influenced by research and practice by Australians (Fien 1993; Robottom & Hart 1993; Greenhall-Gough 1993) and South Africans (Irwin 1990; Janse van Rensburg 1994; O'Donoghue 1993), among many others.

My study also drew on the philosophies and methodologies of environmental education masters' students whose theses explored attitudes and understandings of practitioners and ordinary people, such as, Education Department officials (Mkala-Pholo 1994); farmers (Janse van Rensburg 1991); nature conservators (Barrett 1991); and rural elderly people (Mtshali 1994).

1.5 CONCLUDING COMMENTS

This chapter has presented the context of the research and has highlighted research on health and environment, including the socio-economic, political, geographical, and other dimensions of health. I agree with Futwa (1993: 49) who said,

> Tackling health means tackling development. It means taking up a wide range of problems which, at first sight, may not seem to be directly about health. But they are at the heart of primary health care: sanitation, water and food supply, and helping individuals and communities to develop confidence about themselves and their capacity to act.

The literature has shown the importance of context: generalisations to the study community could not be made based on research done in other communities. Rather, the literature has supported the research process from selection of a topic through to refinement of the methodology.

Chapter two describes methodological issues and approaches for the research. It traces the emergence of new questions contributed by the community health workers. It places the research within the interpretive framework and describes its action research orientation. An evaluation of the methodology is included.

Chapter three presents the participants' understanding of the concept environment.

Chapter four looks at health and environmental issues and problems in the context of change: worsening environmental conditions juxtaposed with new values and beliefs and new educational opportunities.

Chapter five looks at the participants' involvement in environmental activities and with the research process. It focuses on successful health and environment projects they undertook.

Chapter six, the conclusion, summarizes the conclusions reached by each chapter and ends with reflection on the research process.

CHAPTER TWO
METHODOLOGICAL ISSUES AND APPROACHES

Much of progress...consists in asking old questions in new, more penetrating and more perceptive ways.
—Sir John Maddox, editor emeritus of *Nature*

2.1 THE RESEARCH APPROACH

Decisions about methodological approach should fit the aims of the research. If the aims are to discover someone's understanding and experiences, as is the case in this research, then it is important to build upon their "preconceived notions, naive ideas and their experiences with the environment" (Wals 1992:46). In view of the aims of the research, I chose a methodology that would give the primary health care providers participating in the study an opportunity to have a voice. As one of the participants, I also took my own needs into account, such as wishing to share my understanding and to develop a working relationship with the participants (see 2.3).

2.1.1 Issues

Decisions about which questions to ask the participants

The questions asked were intended to guide the participants to explore their understanding. It was necessary to design questions which led to articulation of the concepts of environment, change and action.

Decisions about who to include in the study

The group chosen to participate in the research represents the various sectors which have an input into community health worker training: universities, public health services, NGOs and private individuals. Choice of participants was also influenced by the willingness of those selected to be

involved. Those selected hoped to benefit personally by being better equipped for their work. They also wanted the research to benefit the community.

The framework

I wanted to give participants a chance to learn and create a context for action. It was my wish that the process started in the research would continue in the field. Alternative frameworks such as indigenous knowledge also emerged. There was a sense of urgency among the participants to see improvements in their local environment which served as a type of political framework.

Decisions about what categories to formulate during analysis

The categories for analysis were not pre-determined. Instead, they resulted from the dominant themes that emerged during the research

Language considerations

Since language is an important feature of interpretive research (Schubert 1986) because meaning is being communicated, I had to assess the effects of potential misunderstandings. There was recognition among the participants that we did not all share fluency in one another's first language. Although in participant observation there is scope for communication through the use of body language, sign language, and some basic phrases of one another's languages; in focus group workshops, breakdown in communication could lead to misleading results. To prevent this, the early planning stages of the focus group discussions and the participant observation, one of the professional health practitioners acted as interpreter.

2.1.2 Methodologies in the International Literature

The emphasis in health and environment literature over the last 15 years has been on quantitative studies on epidemiology (the parameters of disease), demography and evaluations of medical and

nursing interventions, so called "before and after" research (O'Donoghue & Ashwell 1994). To illustrate the counter-hegemonic nature of environmental education research, two American studies addressing similar research questions, but using different methods, one positivistic and one non-positivistic, can be compared with my research. Exploring the same topics of environmental perceptions and action, the first American study (Freudenberg 1984) attempted to identify the qualities of activist community organizations which got involved in environmental health issues; while the second (Unger *et al* 1992) explored individuals' perceptions of health risks in their environment.

The Freudenberg study used a questionnaire survey to determine health problems reported by 240 respondent organizations; the type of environmental hazards identified; and, how the activists responded. The Unger study was an empirical study using individual interviews with 235 residents living within 15 Km of a hazardous waste site to determine their perceptions of risk, demographic factors, level of stress from living near such a site, and their coping styles. The authors explained that the questions under investigation were based upon previous case study "anecdotal accounts" which they said needed to be quantified. The main differences between those studies and mine were that theirs attempted to discover what is described by Robottom and Hart (1993:10) as "necessary and sufficient conditions", a kind of risk assessment, of a phenomenon. Their research did not aim at the co-construction of meaning and lacked a participatory or action research orientation.

In Zaire, a group of foreign volunteers working in a remote rural primary health care clinic used interpretive approaches to data collection to investigate the problem of why a model PHC programme was failing to reduce infant and child mortality rates. Children were dying from malnutrition even though food was in abundance. The nurses working in the village, realizing they didn't understand the villagers concept of "health", arranged to have a story written in the indigenous language about an imaginary village. The story was intended to stimulate small informal group discussions throughout the village in which people could articulate their understanding of health and describe what constitutes ill-health (Nickson 1992: 1-18). The outcome of the discussions was that the health workers learned that the villagers had a very

different understanding of illness. Illness was more like disharmony between the person and nature or other people and it was perceived that Western style medicine could not help with such an illness.

Robottom & Colquhoun (1992: 46) conducted participatory research to explore Australian adolescents' perceptions of environment and health. The research critically questioned the assumptions underlying how public health services deal with environmental problems. The Australian study influenced my choice of the framework, especially the authors' advice:

> It is important in studies of perceptions of health and environment and their shaping forces to adopt a methodology that is sensitive to the social, political and cultural contexts and histories of participants, and capable of interpreting their socially-constructed realities.

2.1.3 Interpretive Research

Following my own intuition and the advice of a seasoned qualitative researcher, that the choice of strategy should be influenced by the context of the study (M. Graham-Jolly pers. comm.), I decided on an interpretive case study. Interpretive case study was described by Cantrell (1993: 3) as research which describes and tries to understand social/human situations as experienced by people in a particular context. She observed, "Researchers from this orientation seek to understand phenomena and to interpret meaning within the social and cultural context of the natural setting." Within interpretivism, human beings are seen as active creators of knowledge. Knowledge is co-constructed. Its emphasis on understanding and communicative interaction is suited to a study aimed at gathering information about the meaning different parties make of their experiences. The parties selected shared their knowledge and experience and also helped shape the structure of the research. What resulted is a study within the interpretive tradition, situated in a context in which there is a real need for a new and more vital response to the environmental and health crises. This research was not limited to inductive reasoning which is often characteristic of interpretivism (Robottom & Hart 1993). I am in agreement with Cohen and

Manion (1994) that trying to gather all possible data before beginning to analyse is a time-consuming practice which is not suitable for research with communities.

2.1.3.1 Action research orientation

The research had an action orientation which, in the view of Mc Naught *et al* (1990) is not incompatible with the interpretive approach, but more of a change in direction. In the process of exploring their/my understanding of environment and health issues and their/my theories about them, there was an ongoing reflection on their/our practice. There was also a sense of commitment to the research displayed by the participants when they became involved in decision-making about research method. As described by Elden (1981), the mark of true participatory research is when those directly affected by the research can influence problem definition, methods choice, data analysis and how the findings are used. In this research involvement of the participants was not fully participatory by Elden's definition.

2.1.3.2 The role of the research initiator

In interpretive research, the researcher is the data collection instrument (Delmont 1992; Patton 1987), and is responsible for the accuracy of the data (Lewin 1990).

2.2 METHODOLOGY

2.2.1 Community Entry and Choice of Sample Groups

Since the aim is to explore the environmental understanding of health providers in the context of their work, a selection of participants representing all of the categories of people providing health care services and health education in the Nxaruni community was made (see Figure 2.1). The sample was chosen on the basis of purposive sampling (Cohen and Manion 1994) and in agreement with Klugman (1993: 6): "The people doing the work are the ones with the answers."

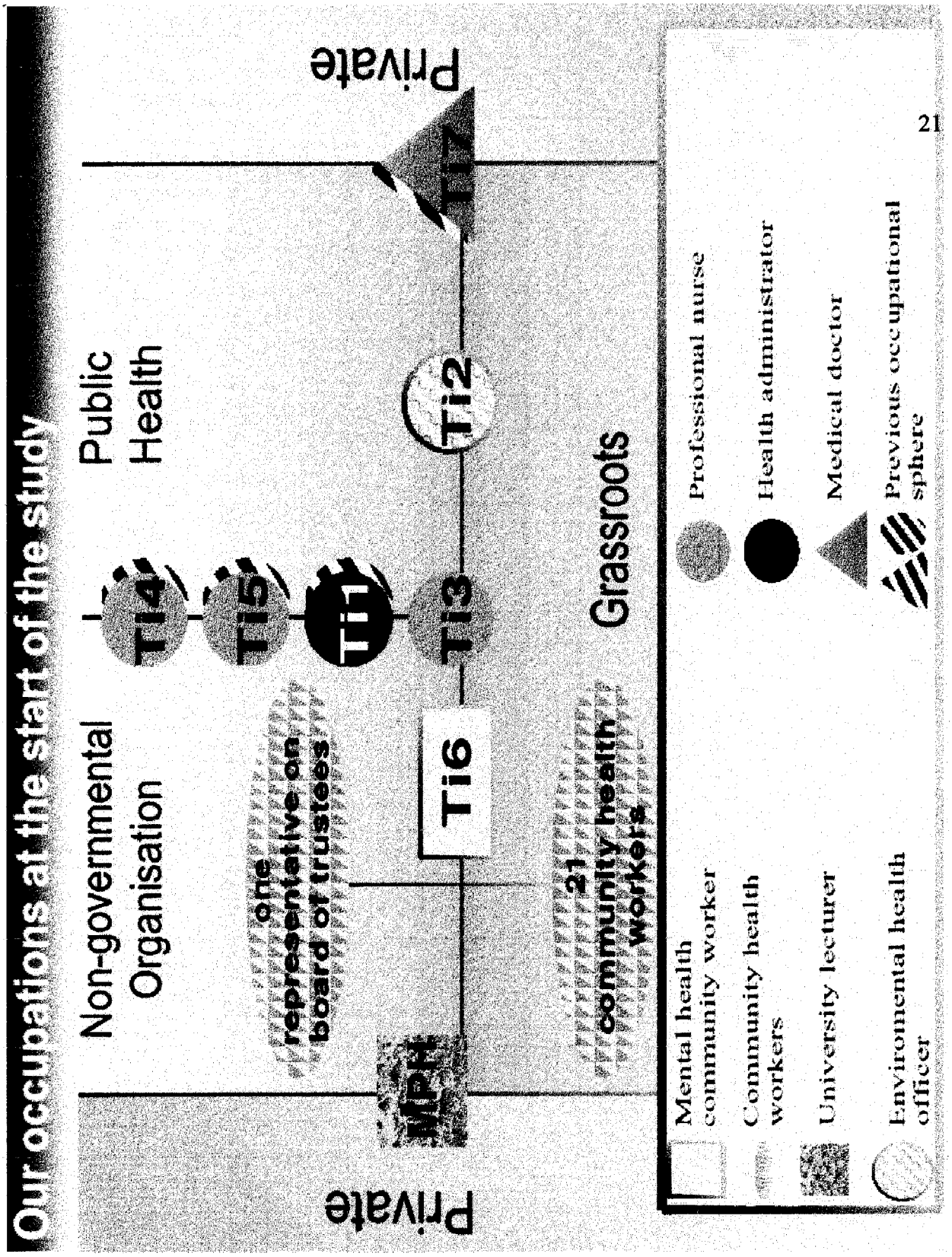

Figure 2.1 The participants' occupations at the start of the study.
Thami (Ti 1); Phambili (Ti 2); Mandisa (Ti 3); Olivia (Ti 4); Khanyisa (Ti 5); Zolani (Ti 6); Sean (Ti 7); Myself (MPH).

These health workers fell into two categories for the purposes of the research: one group was the 21 community health workers who were Xhosa-speaking female volunteer lay health workers permanently residing in Nxaruni. This group spends four days per week providing preventative and promotive health care in their home villages (which were as far as 10 km away from the clinic) and the fifth day meeting with all the other community health workers and their supervisor at the clinic. Their part in the research comprised participation in an environmental education focus group workshop, accompanying me during my participant observation in their villages and doing some planning and reflecting on the research process. Selected from the community, they reflect the heterogeneous nature of the community (Kotze 1995). The second group was selected from health care professionals who were, or had previously, been involved with training community health workers. The professionals were interviewed in English in their offices. One interviewee was not allowed to "have visitors" at his office so an alternative venue was agreed upon. None of the professionals resided in the study community, although all of them had a rural upbringing. Figure 2.1 illustrates the work of each individual in relation to the study community. To avoid identification of individual participants, I have used pseudonyms.

The process of selecting which villages to visit and once there, which homes to visit and residents to speak to was done by the community health workers. Six of the nine villages that comprise Nxaruni were visited for this study, as illustrated in the time line (see Figure 2.2).

As the data collection progressed, the need arose to interview two additional people: a mental health community field worker who was working in the same village during our participant observation, a chance happening described by Lewin (1990) as serendipitous data collection, during observation in the villages; and another, a white, female medical doctor whose perspective I felt was necessary to include (described as snowball sampling by Cohen and Manion 1994). In such a heterogeneous sample, many perspectives were expected and various data collection methods were used to allow the subjects to express themselves comfortably.

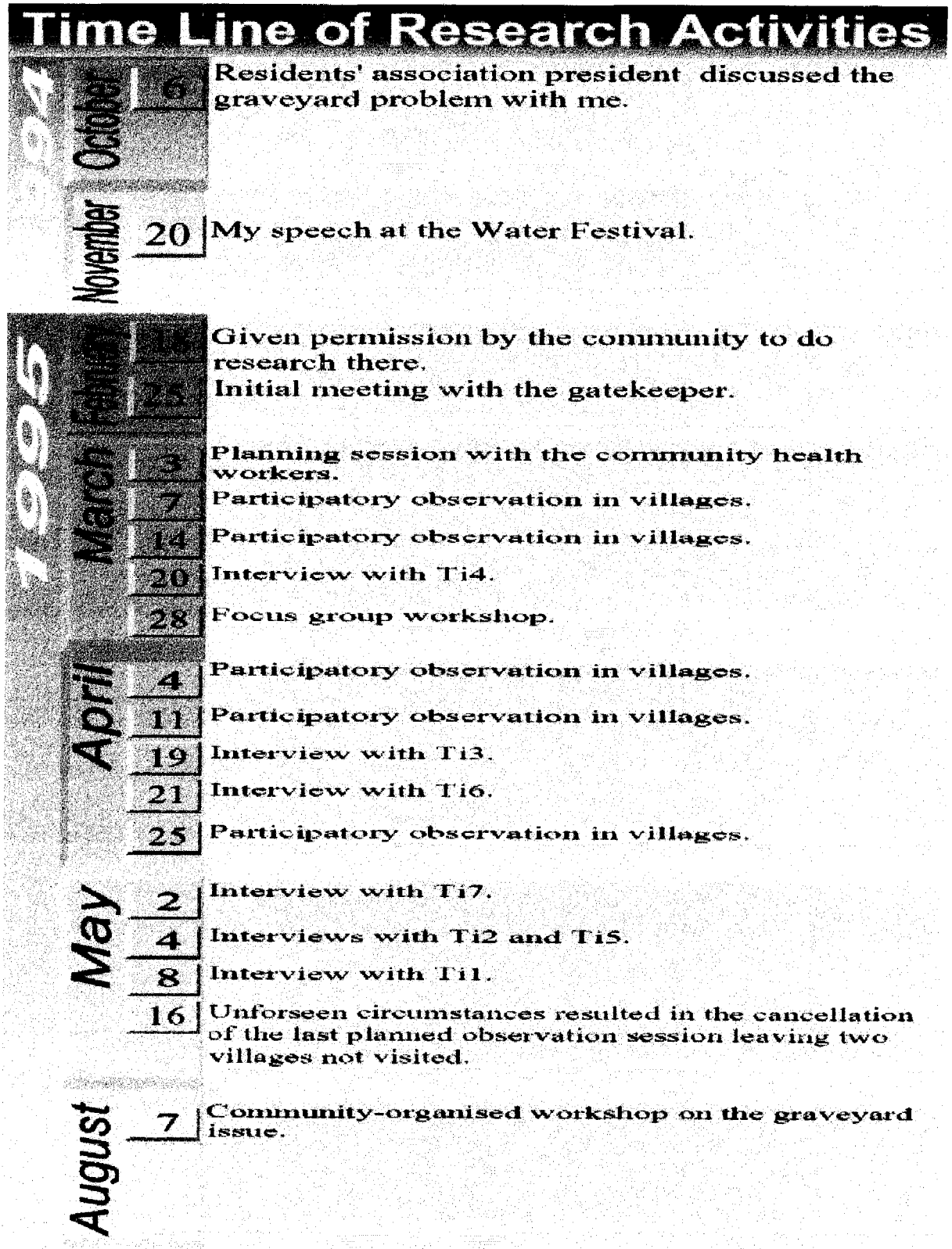

Figure 2.2 Time Line Of Research Activities

2.2.2 Data Collection

A blend of complementary techniques was used in the process of data collection: interviews, a focus group workshop and observation. Essentially, the same questions were asked of all participants, though the wording differed. It was intended that the selected techniques would allow the participants to express themselves in their own style.

2.2.2.1 Interviews

Individual semi-structured interviews (Burroughs 1971) were held with seven professional health personnel. An interview schedule (see Appendix 1) was used as a guide to the areas of inquiry, but the format of the interviews was flexible in sequence and wording. Allowing interviewees the freedom to digress and to raise their own topics as the interview progresses is common in action orientated research (see 2.1.3.1).

Interviews were tape recorded and transcribed verbatim. Prior to turning on the recording device for the interview, some preliminaries were carried out:

- An explanation of the recording procedure with reassurance of anonymity was given.
- A recap of the purpose of the research was given: "The questions I'll ask in the interview cover your ideas of environment and health."
- An opportunity was given for the interviewee to ask any questions

At the conclusion of each interview, the tape recorder was turned off to allow an off-the-record sharing of personal background and education as well as ideas about the research. Later, the sessions were reflected on in the research diary.

2.2.2.2 Piloting of the interview techniques

Three micro-interviews of 15-20 minutes each were conducted as a preliminary to the longer (45 minutes) pilot interview. The micro-pilot interviews helped in the development of the research questions and helped to establish which parties' perspectives are important. Notes written after the interviews were jotted in the research diary.

The longer pilot interview was conducted to ensure that the objectives for the interview, as stated in the research proposal, were met, that the wording was understood and to test the recording process (Seidman 1991; Anderson 1990). This longer pilot interview with Olivia forms part of the data analysed for the thesis.

2.2.2.3 Observation

Careful observation was done throughout the data collection phases, particularly during the community visits (field work). Because of my involvement during the visits, the term "participant observation" (Patton 1987) is used here. During the visits I accompanied the community health workers on their home health visits. As we travelled between homes we engaged in "casual chatting" (Cohen and Manion 1994: 61) on environmental and general community issues. As soon as possible after leaving the field, the observations were recorded and reflected on in my research diary. The diary remained a record of ongoing self-reflection on research decisions, methodological developments and emerging insights (Ely *et al* 1991).

The first few community visits were learning sessions for me where I checked my own preconceived notions against the reality on the ground. My design strategy for the participatory observation phase of the data collection cycle, was that I had to learn as much as I could about the context of the study at first hand and at the same time provide opportunities for the community health workers to learn from me and to look at their educational practice.

The visits we made to each village were planned by the community health workers. Our pattern each week was for two or three community health workers to set off from the clinic with me driving. One or two villages would be visited per week. In each village we adapted our data-gathering method to the local needs and limitations placed on us by the poor road surfaces. In one village we walked more than 15 KM to go to almost every home; in other villages we didn't get out of the car, but drove extensively in and around the perimeter of a village observing such conditions as soil erosion or agricultural styles. A diary entry from this type of observation records my experience:

> *The community health workers with me had a lot to say and we had to stop the car many times to talk, to observe, and to discuss. Their English was good and communication easy. I was more relaxed than other times because the car gave no problems.*

Wherever we went we talked to the residents. In one village I was introduced in isiXhosa as a teacher who had come to ask, "Why, why, why? about environmental problems. The word "why" was spoken in English and "ienviromente" was used for "environment". I regularly cross-checked my observations with the professional health workers during their interviews which were being conducted concurrently with the community visits (see Fig. 2.2). Informal group interviews, a common ethnographic fieldwork technique, supported the observation (Patton 1987; Cohen and Manion 1994; Mtshali 1994).

2.2.2.4 Focus Group Workshop

Focus group discussions (Anderson 1990) formed part of an environmental education workshop attended by the community health workers. The CHW supervisor was facilitator and interpreter. Given the opportunity to clarify issues was for all of us a "participatory meaning-making process" (R. O'Donoghue pers. comm.). The workshop programme provided opportunities for the participants to share and compare their perceptions of environmental issues in their first language. The focus group discussions (Appendix 2) covered the same topics as the semi-structured

interviews (Appendix 1) in order to triangulate the data. The 21 community health workers went into one of three breakaway groups which gathered around in a circle to discuss each topic. Twenty minutes were given for each topic and then a plenary session was held to give feedback on what was discussed in the small groups. One of the professional health practitioners (Olivia) also participated in the second half of the workshop.

When I initially decided on the research design, I had not thought of a workshop. Instead, I planned to have informal group interviews with the community health workers during my visits to the villages. However, they requested a workshop. As it happened, it was by far the best option. I would speculate that the workshop was favoured by the community health workers because it would be inclusive and egalitarian, it would be an opportunity for socializing and for getting moral support from their colleagues, and, it would offer an opportunity to learn something new.

A tape recording of two discussion groups provided material for direct quotations; provided a sample of the ambience of the workshop; provided an opportunity to assess the extent of the influence of the facilitator; and an opportunity and to check the translations done by the transcriber.

2.2.3 Data Analysis

The conventions of qualitative data analysis were followed (Miles and Huberman 1984; Pitman and Maxwell 1992). A modified form of content analysis (Kerlinger 1986; Sanders and Pinhey 1983) was applied to the interview data grids. There was a convergence in the data collected by the different techniques. Because of the vast amount of different kinds of data generated, it was necessary to group it into clusters of meaning units so that nothing would be left out (Kirby and McKenna 1993).

The tape recording and Xhosa and English transcripts of 15 minutes of the workshop were

reviewed by a fellow environmental education researcher whose mother tongue is Xhosa. He checked the accuracy of the translation and also provided an opportunity for "cross-checking between researchers." This is a technique for validating ethnogenic qualitative research which can disclose unrecognized researcher bias (Cohen and Manion 1994: 211). He had two critical comments on my data: that in his opinion the community health workers' discussion was limited in its content and depth when gauged against the elements of environmental education; and that there was evidence from the tape recording that one or two people were dominating the focus group discussions. After reflecting on my colleague's points, my response is that the focus group workshop method does limit the depth to which a topic can be explored because of time limits set, and, it limits the amount of feedback because ideas must be condensed into single sentences or phrases for reporting. I also feel that the community health workers' content knowledge is deficient, but I consider that content knowledge is only part of what is needed to do environmental education. They are in a position to benefit from the research.

In response to my colleague's second point, I replayed the recording to assess the number of voices heard. Most of the participants contributed at least an affirmatory or negative remark during the discussion sessions. However, there were two voices which were louder and more authoritarian than most of the others. He said that culturally one person defers to another out of respect depending on age and position (rank). One participant acknowledged her advantage when she said, "I'm talking a lot because I'm used to preaching." However, the participants were not inhibited by the presence of their supervisor or coerced into agreeing with her, as evidenced by several issues on which there was open disagreement.

2.3 REFLECTIONS AND EVALUATION

Building a relationship of trust was necessary for the success of the research. For example, I trust the ideas and opinions of the participants to be authentic and I trust my observation of the context. The methodologies used, especially participant observation, allowed time and space for trusting relationships to form, although the focus group time allotments were limiting to some

people. The steps necessary to establish trust go beyond gaining access to the community. It was an ongoing process throughout the research.

I felt they should be reassured that this research was different from the exploitative surveys done on them in the past by academics referred to as "the pen and notebook brigade" by the local people; our educational and cultural backgrounds were very different; more time and dialogue was needed to find common ground; and, I sensed that the community health workers had the key to answering the questions at the root of the research.

Besides the relationships which developed between me and all the participants, closer relationships developed between two of the professional health workers and the community health workers because of time they spent talking about the research. All of the participants asked to receive follow-up information on the progress of the study. A progress report was provided.

Initially, I had planned to take a naive approach (Allan and Skinner 1991) whereby I act as if I am uninformed and without opinions on the topics for discussion, but in the early stages of the research I abandoned what proved to be transparently artificial and adopted a more collaborative position. It was important that I expressed what I knew when asked and that I shared my holistic view of environment. I knew that it had been my perceived expertise which prompted the people to ask for my help with their graveyard problem (see 1.1). Still, there was much that was new knowledge and experience for me; I was on a steep learning curve as were all the participants. We regarded one another's expertise as integral to the ongoing process of inquiry we were involved with. It was not merely a "rescue mission to save me from my own ignorance" (Goodman 1992: 123) although my ignorance was great. Self-reflection was integral to the method and helped to level inequalities between the participants. Self reflection ". . .is necessary in order to guard against imposing meaning on phenomena rather than constructing meaning through negotiation with those being observed" (*ibid*).

The choice of interview venue for one-on-one interviews was important. I became aware of the possible influence of venue at the last interview of the series held at a health spa where I felt discomfort for at least the first half hour of the interview. When I shared the feeling I was experiencing, Sean said many people are affected at first by the quiet and serenity of the total harmonious environment. Reflecting afterwards in my research diary, I noted that this setting revealed many of my biases about what constitutes environment, about who has the authority to speak about environment. Whose truths are valid? I noted that I persisted in asking Sean questions about the problems of the underprivileged and about pollution, as if I didn't accept her perspective on environment. This was a learning experience for me which I have drawn on in the analysis for the thesis.

The methodologies chosen were expected to provide a relaxed atmosphere for sharing of ideas. The intrusion of a recording device, the portable tape recorder, was helpful for some, but threatening to at least one person: Although I had asked permission to use it, one interviewee said it made her very uncomfortable. On the other hand, one workshop group said, "Fortunately we have the tape recording of all that we are saying."

The convergence of data indicated to me that this was an interactive process. The in-depth qualitative data obtained showed the links between the different players; their tie being the issues they jointly grappled with.

A slightly problematic aspect of relying on clusters of meaning units (see 2.2.3) for analysis is the possibility of overlooking a contradictory view which an individual may have. To avoid this occurrence, respondents at the extremes of the sample (Cohen & Manion 1994) were included in the sample group. This usually has the effect of balancing the weight of opinion away from the centre, but can also make interpretation of the "odd" data difficult. I was tempted to disregard the data extremes, but did not because every opinion is valued.

Based on individual interviews, group interviews in a field setting and a focus group workshop,

all of the participants interacted in the research process. The results are presented in the next three chapters in such a way that the development of the respondents' environmental understanding is clarified. Chapter 3 describes their understanding of the concept environment and gives examples of their experience of the problematic nature of the environment. Chapter 4 presents their coming to terms with the changing nature of the environment and their need to re-evaluate their long-held beliefs and educational practices. Chapter 5 tells the health care providers' own success stories.

CHAPTER THREE

THE CONCEPT "ENVIRONMENT"

In interpretive research, knowledge is a 'dynamic human construct, intuitive, subjectively derived from experience'.
—Janse van Rensburg, M.Ed. course notes

3.1 INTRODUCTION

This chapter focuses on the participants' understanding of the concept "environment". The results reported here are based on semi-structured interviews, participant observation and focus group discussions.

3.2 INTERVIEWS WITH PROFESSIONAL HEALTH CARE PROVIDERS: RESULTS AND DISCUSSION

3.2.1 The Concept "Environment"

Looking at the first question, "When you think of environment what comes to mind?" (see Appendix 1), the participants gave a range of responses, answering briefly and spontaneously:

- health (Thami, Mandisa, Olivia)
- cleanliness (Thami, Mandisa, Olivia)
- my surroundings or the area where I stay (Phambili)
- the home and community (Mandisa, Olivia)
- trees, soil and the beauty of the land (Khanyisa)
- the air or atmosphere around us (Zolani)
- everything around us as well as our physical, mental and emotional self (Sean)

One of three people who said environment means health, Thami explained, "The healthier your

environment is, the healthier you will be." I presume that responses to this first interview question were based primarily on the health professionals' formal training. In their training the theoretical model for environment was a series of concentric rings with a person at the core, surrounded by an outer shell representing the home environment, and a second outer shell representing the community environment as depicted in popular health education textbooks.[7] Environmental concerns beyond community borders, namely regional, national or global, were not mentioned at first by most of the respondents. However, Zolani's example of "the air or atmosphere around us" and Sean's, "a person's internal and external environment with everyone and everything which is a part of it," showed a broader conceptualization of environment. Sean, a medical doctor, has stepped away from her classic medical school training which traditionally regarded the person as the sum of its parts (Capra 1982). Further, Sean was the only respondent whose initial responses reflected the social aspects of environment without some probing.

Examples of the probing questions I asked of the others are, "And what about other family members in the home? Are they part of your environment?" or, "Does your understanding of environment include people?" The usual reply was, "Yes."; however Phambili said, "No, we are quite specific about our definition of environment." This use of the pronoun "we" was noted frequently in the transcriptions of Phambili's interview. It is a style of speech which could suggest a dogmatic belief in the underlying principles of his discipline, environmental health. I believe that the use of the pronoun "we" also has a cultural dimension. People tend to speak on behalf of communities rather than on behalf of themselves if they come from a culture which places less value on what "I" think than on what "we" think. As the first question stimulated only superficial responses, I delved more deeply in the next two questions.

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[7] Environment has been described in health education textbooks as: factors outside of/or as a separate entity to the client, "encompassing" the client (Dignan & Carr 1981; 69); or, as "non-personal" health matters which need to be maintained "in a clean and hygienic condition" (De Haan 1990:3).

3.2.2 Environmental Issues

The responses under this heading are fuller than the initial responses discussed in the previous section (3.2.1). This is due in part to the rapport which developed between the interviewees and me. As the discussion topics were unravelled, the discussion flowed more freely. I have grouped their responses to Question 2, "What do you see as important environmental issues?" and Question 5, "Describe what the situation is like," (see Appendix 1) into four categories: biophysical, socio-economic, political and educational. These four main aspects of environment shown in Table 3.1 crystallized out of the data as part of the emerging process of inquiry.

The table illustrates both the range of categories included in the concept "environment" and inter-relationships between environmental issues as understood by the group of professional health care practitioners. The categories used in the table are adapted from Irwin's (1993) study. Asterisks in one or more of the three right-hand columns in the table indicate instances where the interviewee spoke of relationships or links between elements. For example, if an interviewee or interviewees mentioned item 17 (violence) as being an important environmental issue and then included in the discussion how violence is related to health, then an asterisk has been placed in the health column.

It can be noted from the asterisks in the health column that in most instances the interviewees linked a particular environmental problem to health. Factors in the environment were seen as contributing to health problems. There is a strong role identity among these health professionals. For example, sub-standard housing (item 12) which is damp and poorly ventilated, is seen as a health risk. I would speculate that health was the main focus and concern of the interviewees because it is their occupation. Three categories in which no link between an issue and health was mentioned are item 14, loss of cultural roots and traditional ceremonies; item 21, powerlessness over pollution; and item 22, suppression of cultural identity. This could indicate that cultural

Table 3.1. A breakdown of the environmental issues discussed by the professional health personnel.

Item	Category	freq	socio-econ	polit	health
Biophysical					
1	Water: pollution	5	*		*
2	Land: littering; unlawful dumping	5	*	*	*
3	Water: shortage	4			*
4	Trees: deforestation	3	*	*	*
5	Soil erosion/depletion	3	*		*
6	Air pollution (dusty roads; toxic wastes, indoor fires)	3	*	*	*
7	Monoculture	1	*		*
Socio-economic			biophysical	polit	health
8	Poverty	7	*	*	*
9	Disease (malnutrition, respiratory diseases, injuries)	6			*
10	Unemployment	5	*		*
11	Hunger and malnutrition	4	*	*	*
12	Sub-standard housing	3			*
13	No skills or no skills transfer	3	*	*	*
14	Loss of cultural roots and traditional ceremonies	3	*		
15	Scarcity of fuel	2	*	*	*
16	Poor roads	1	*	*	*
17	Violence	1	*	*	*
18	Miscellaneous: eg. insufficient schools	1			*
Political			biophysical	socio-econ	health
19	Land: confiscation; illegal occupation	2	*	*	*
20	Unequal resource distribution to rural areas	1	*	*	*
21	Powerlessness to control pollution	1		*	
22	Suppression of cultural identity by previous government	1	*		
23	Awareness not leading to action	1	*	*	*
Educational					
24	Suspicion of Western medicine and health education	2		*	*
25	Elitism by educated people	2		*	*

issues were seen as separate from health, where health is defined in Western terms. There are many instances in the data where a double standard is evident - as in the denial by some community health workers that traditional herbs are harvested in the vicinity (see 4.3.1), and no mention of details by professionals about traditional healing practices.

For 12 of the 25 items listed in the table, links were described between all four aspects of the environment. For example, item 15, scarcity of fuel, was seen to relate to socio-economic, political and health issues. This demonstrates awareness of an inter-connectedness of environmental issues. However, I concluded that the cause and effect interactions of issues was not clearly perceived. This could have been due to constraints of the interview situation (see 2.3), but my sense is that a certain inexperience by the interviewees in grappling with environmental issues was in evidence. To go beyond the superficial treatment of complex issues, I believe, would require a knowledge base in the areas of ecology, sociology, economics and environmental education. A basic understanding of history is another essential requirement for dealing with the complexity of environmental issues, and I demonstrate elsewhere (see 4.3.1) that this research community had a significant fluency with historical concepts.

They made sense of the issues specifically in the context of the community and the unique experience of the residents there. For example, the reality of poverty (item 8) was recognized as a factor in many environmental issues. Sean described the complex inter-relationships of issues as like a three-dimensional spider's web. Some of the relationships Zolani and Thami recognized in the litter issue are depicted in a flow diagram:

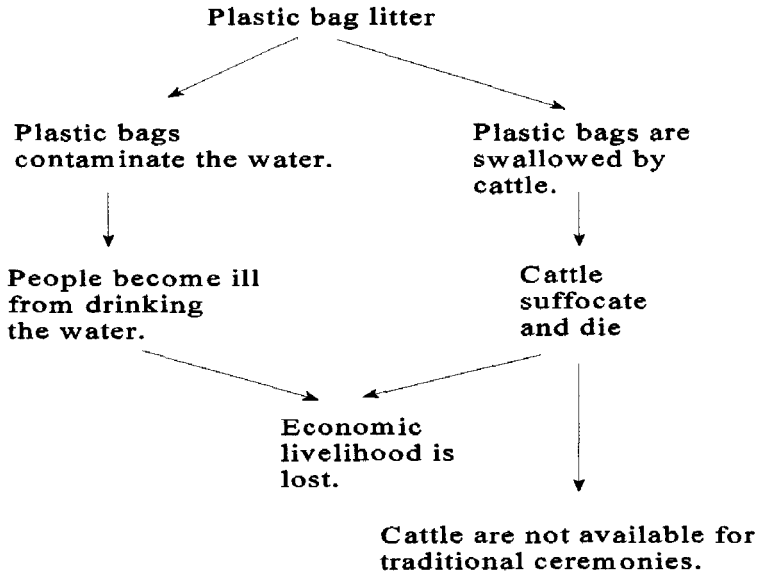

Figure 3.1 An analysis of the litter problem.

The litter issue was one of five issues, together with poverty, disease, unemployment, and water pollution which were discussed by five or more of the interviewees (refer to Table 3.1). Generally, the frequency with which some issues were raised indicates either that some problems were more frequently encountered by the health practitioners in their work; or, were regarded as more serious; or, because it was part of donor organization strategic plan for development. However, frequency could also be due to popularity of issues in the media. The conclusion I reached about why some issues were raised by more respondents than other issues is that it is a function of the semi-structured interview method. The respondents were encouraged to talk freely about their views. Many of them went into depth on one topic, for example, Khanyisa on

soil erosion, leaving no time to refer to other topics. Whereas, others, especially Zolani and Mandisa who worked in the community every day, had many different issues to raise, bearing more resemblance in length to the lists of issues explored by the community health workers (see Table 3.2).

Some of the interviewees gave examples of environmental issues affecting them personally, outside of work-related situations: one spoke of his brother's desperation because of unemployment and poverty. While others spoke as if they were speaking for the community. Mandisa told of the dusty roads causing respiratory problems amongst the people and while she did not say she was also affected, she is the only one who mentioned dust as a problem, and she was the only one in the interview sample group who worked full-time in the community. I believe that identification with a place and its problems is a factor in environmental understanding.

Features of the interviewees' understanding of the environment which were crystallized during the interviews are:

- Environment has different meanings for different people. Your understanding can vary if you identify strongly with your occupational calling. In this study, the professionals identified with the needs of the community they work in and generally with the goals of PHC. Or, one might identify with one's home community. For example, Sean said that colleagues coming from farming backgrounds were aware of the ecological (biophysical) environment, but did not view environment holistically as she did. (See 5.4.1 on sharing understanding with colleagues.).

- Environmental understanding has an emotional component, suggesting that feelings influence how one regards the environment. Some of the emotions expressed during the interviews were: love of a place, pride, respect, accountability, feeling of worth, love of nature, sadness, care, reverence, trust, sensitivity and compassion. Feelings of helplessness were also expressed by Zolani when telling about the failures of health

educators' organized family-planning campaigns. "There are people who resist education," he said, "in order to keep their culture." (See 4.3.1 on what the community health workers said about family planning campaigns.).

Zolani's statement illustrates the paradox which, in my view, is causing people to ask, "Why hasn't the quality of health improved in spite of all the efforts and money put into it?" On the one hand, there was the perception by some health care professionals that the people were suspicious of Western medicine's teachings and techniques, in other words, that the consumers are resisting it (Table 3.1 - item 24). This was corroborated by several of the community health workers during participant observation, when they gave examples of non-compliance with TB drug treatments. It is not known whether or not they are turning to traditional practitioners or merely shunning all treatment. And on the other hand, many rural people travel at their own expense to high-tech hospital facilities or to private practitioners in towns seeking medical attention that is already available, in perhaps less sophisticated packaging, in their local clinics (Segar 1994). They seem to expect health professionals to be knowledgeable and to apply the latest technology, yet they also reserve the right to consult traditional practitioners.

My assessment is that this ambivalence by their clients puts pressure on health professionals to compete against apparently more sophisticated knowledge and practice. In environmental education, they may feel at a disadvantage if they perceive their background knowledge base of ecology, environmental economics or geography, is weak. Professionals believe that the people they serve expect them to have all the answers.

3.3 FOCUS GROUP DISCUSSIONS WITH COMMUNITY HEALTH WORKERS

The environmental education workshop (see 2.2.2.4) held with the community health workers provided opportunities for both formal and informal discussions.

The assigned small focus group discussion topics (see Appendix 2) were:

1. When you think of environment what comes to mind?
2. What Xhosa words do you use for the English word "environment"?
3. Please describe the environmental problems in your village.

Two of three focus groups agreed that *okusingqongileyo* means "environment". I proposed the word *okusingqongile* which had been suggested by an education officer at a local history museum. Disagreeing, the community health workers explained to me that *okusingqongile* means "surroundings" and is used by the "Zulus and Shakas", whereas the amaXhosa say, *okusingqongileyo* which means "surrounded". Eventually, the term *ienviromente* was unofficially adopted. Refer to section 2.1.1 for the consideration given to language issues in this study.

The third focus group started their discussion by listing their environmental problems but did not consider the concept "environment" as such. They were engrossed in the discussion and lost track of time , as their rapporteur explained: "We have asked ourselves what our environment is and we ended up not answering your question. We just concentrated on what our problems are." This was an encouraging result for me, as it showed me how committed the group was to the discussion: they virtually lost themselves in the discussion and set a positive tone for the workshop.

The environmental problems reported by the three focus groups at the workshop are tabulated in Table 3.2. I have grouped their lists into the categories which emerged from all of the focus group discussion data: biophysical, socio-economic, and educational.

Table 3.2 The community health workers' list of their environmental problems.

Item	Environmental problems
Biophysical	
1	No piped water in some villages
2	Poor sanitation
3	No graveyards demarcated in some villages
4	Other villages' graveyards situated on river banks
5	Improper burial practices (kraal burials)
6	Free-range pigs causing disease
7	Insect pests (mosquitoes)
Socio-economic	
8	No building materials to construct toilets
9	No buildings for preschools
10	No schools for the handicapped
11	One clinic for the whole district
12	Poor housing materials; houses get washed away
13	No telephones
14	No electricity
15	Poor roads
16	Inadequate public transport
17	No tools & fencing for vegetable gardens
18	Substance abuse
19	Suicides
20	People are unwilling to render service
Educational	
21	People do not follow the advice given them by health educators

The table shows the 21 environmental problem areas that were raised by the three small discussion groups. It appears that the community health workers included all of the problems they could think of in their list. It would be difficult to synthesize from it a meaning of environment which is separate from their perception of the social world around them. Although it might seem that they regard the environment as all-inclusive, covering *all* of the problems they encounter in their work, this is not so. My observations and discussions with their supervisor lead me to conclude that they have selected issues which they regard as environmental. They do not regard it, as in O'Donaghue and Janse van Rensburg's (1995: 8) words, as "nature with problems". Only items 1 - 7 are examples of natural resources and the biophysical aspects of environment. I grouped these items into the biophysical category, but they could just as convincingly be included with the socio-economic issues. My insight is that environment, for them, has a lot to do with quality of life. The issues they have raised are uppermost on their list of what changes they need to see to achieve a better quality of life.

Key points from the workshop data are given below:

- The problems listed by the community health workers were mainly examples of problems encountered by some or all community residents.

- The issues of sanitation and housing were discussed in great detail.

- Some issues, such as shortage of wood for fuel or the health implications of environmental problems, were not raised during the focus groups. As I did want to clarify these issues, I put them on my participant observation schedule, to be followed up during my community visits.

3.4. DISCUSSION

The first interview question and the first focus group discussion topic eliciting the participants'

views on the "concept" environment (see Appendices 1 and 2 for the exact wording of the questions) were included to stimulate free association. The interviewees responses were spontaneous, being similar to definitions of environment that appear in health education or environmental health textbooks. Another characteristic of many of the responses is that they related to topical issues highlighted in the media or being targeted by their employers. For example, a social forestry project was supported by the NGO which employed three of the professionals interviewed. As noted above, the focus groups began with a discussion of the linguistics of the word "environment" and then proceeded to list and discuss issues. The professional group did not debate the Xhosa meaning of "environment" as the community health workers had. It might have helped me further in understanding their perceptions of the concept, had I thought of inquiring about the term used for environment.

The interview schedule and the workshop programme were designed to give the respondents opportunities to personalize their responses by telling their own stories, which was a way of relating how they dealt with their experiences (Seidman 1991). The interviewees were asked specifically to relate their stories (see Question 5 in Appendix 1) whereas, the workshop participants did not need to be cued to tell their stories; they were spontaneous. The differences between the workshop and the interview methods accounts for the differences in the amount and nature of the data (described in Chapter 2). Frequently during the interviews and during the focus group workshop, I contributed my own environmental education perspectives, as well as mentioning my observations from community visits and sharing the input of other participants in the study.

It appears that some issues were not equally well known to all the participants. This shows that different individuals have different perceptions and priorities. Both groups put emphasis on housing, schools and poverty as important issues. Both groups also spoke on behalf of the community unless specifically asked to tell their own experience. Identifying with the community was integral to the participants' understanding of environment.

There were, however, some inconsistencies between focus group workshop and individual interview data. The community health workers did not report on having raised any political issues. Although it is possible that such issues were discussed in the breakaway focus groups, they did not form part of the group feedback. Though in other encounters I had with them, the community health workers freely discussed a full range of issues, including some of the ways they are disadvantaged as women. On the other hand, the professional health workers discussed five issues in their interviews which I have categorized as political (items 19 - 23 in Table 3.1).

Regarding the issue of water, although five out of seven in the interview sample group mentioned water as an issue, only one group of community health workers listed water as an issue during the workshop. To gain clarity about this inconsistency, I investigated the water issue during community visits. My research diary entries, as well as participant observation notes, showed that access to clean water was still a problem for 10,000 or more residents of the more recently established village in Nxaruni and of the vast informal settlement on the Mdantsane side of the Nahoon River who did not have piped water (see Figure 1.1).

During my visit to the village without water, I saw women walking to draw water from a stream more than three kilometres away; and others, residing on the outskirts of the village, were observed crossing a four-laned national highway to collect water. It so happened that for at least two weeks during my participant observation period, all of the villages were without water due to a breakdown of the system, but this supply failure was not raised as an issue during our discussions. Certain questions are raised by this. Is there a lack of communication between the health personnel serving in different areas? Or, is it that water issues were not high on the agenda of problem issues? My explanation is that at the grassroots level there was general acknowledgement of the hardships of those people residing in the areas without piped water.

3.5 CONCLUDING COMMENTS

The views of the environment reflect people's immediate needs and concerns. As the respondents are each unique individuals, multiple perspectives on the meaning of environment have been shown here. At times the participants drew on their own life experiences so then gave individualistic views. At other times, communal perspectives were expressed.

As noted (see 3.2.1), to articulate one's understanding of a concept like environment was not an easy task. In spite of the fact that the respondents had been briefed that health and environment would be discussed (see 3.2.1), many were, at first, hesitant to speak. I suggest that the hesitancy was due to a combination of factors, among them, uncertainty about what I "wanted" from them, and also, difficulty using what may have been perceived as specialized terminology. Once the discussions turned to issues and problems (see 3.2.2 and 3.3), the participants' skill in articulating their views grew.

Specific credentials were not a requirement for inclusion in this study. I explained to the professional health workers that they were chosen because of their involvement in the training of lay community health workers who would be the ones to take environmental education to the people. In spite of being reassured that I regarded their contribution to this research as vital, most of the professionals needed to reassure me that their views were valid. "I know what I'm talking about because I grew up in a farming community." (Sean); "I know because of my [African] roots." (Khanyisa); "I know because I've given a workshop on this." (Zolani); "I know because I grew up where there were trees and rivers." (Thami); "I know because I've been to all the homes [in the community] and I attend their meetings." (Mandisa). One interviewee who could not answer one of the questions replied, "I don't know because I'm new at this job." (Olivia). While another, when asked, "Why do you say that?", replied authoritatively, "This is the way it is." (Phambili).

In the process of exploring the concept "environment", the respondents looked at how different aspects of the environment are interconnected. They related the difficulty they experienced teaching health education in a community with so many problems which were not addressed by the classic teaching methods. The next two chapters build on aspects of environmental understanding and action.

CHAPTER FOUR

UNDERSTANDING OF CHANGE

They came in hordes
They spoke in whispers
True meaning of their lives
Such wisdom rare
Their logic a jewel

Memories they had for days gone by....
—Basil Somhlahlo, *A Whistle from the South*

4.1 INTRODUCTION

While chapter three addressed the participants' basic understanding of environment, this chapter focuses on their perceptions of what the environment was like in the past in terms of the health of previous generations; and their consideration of current issues in comparison with the past (see Question 3 in Appendix 1). The results will be presented and discussed here, beginning with the interview data from the professional health workers, followed by the community health workers' input at the focus group workshop and during participant observation.

4.2 INTERVIEWS: RESULTS AND DISCUSSION

4.2.1 Overview of Opinions

These interview topics gave the interviewees the opportunity to think more deeply about their responses to earlier interview questions and to clarify their understanding. Whereas they had initially responded superficially by merely listing environmental problems, such as soil erosion or malnutrition, (refer to Table 3.1 - items 5 & 11) now they were asked to add an historical dimension to their discussion of the problems. They showed insight not only into how they perceived the environment to have changed, but also, into how peoples' present interactions with the environment compare with those in the past.

I have selected the theme categories A, B and C shown in Table 4.1 to group the respondents' comments:

Table 4.1 A summary of the main points made by professional health care workers in response to interview question 3: "How do the environmental issues now compare with the past?"

Name	The past	The present
A. There were fewer problems in the past.		
Thami	The importance of keeping water pure was known.	Industrial and other causes of water pollution is out of control. People just need to be told how to keep water pure.
Phambili	Pollution was not evident.	Environmental problems are not being solved due to lack of skills and resources. Government departments are uncoordinated in their efforts to help.
Khanyisa	Maize was a staple crop and there was enough to eat.	Less maize is grown. Malnutrition is common.
Sean	People were in touch with their environment through the way they lived.	Resettlement of people to areas they have no feelings for. Loss of awareness of surroundings.
B. Many problems of the past have been alleviated by education; now there are different problems.		
Zolani	The patriarchal society was responsible for many problems. Fear was instilled by educators.	Education has helped improve people's health; however, poverty is out of control and there is resistance to the "white" concept of health.
C. There have been some improvements, but most things have not changed.		
Mandisa	There was no piped water. There were no residents' committees. People didn't always see their problems.	The water is piped. There are residents' committees and community involvement. Women need to be developed. Not everyone sees their problems.
Olivia	People used to just know how to care for animals and land. People had no rights to speak out. Living conditions were unhygienic.	People need to be educated about the environment. People have a voice. Water-borne diseases are still occurring. There are more people and more factories causing pollution. Living conditions are still unhygienic.

Four interviewees said that there were fewer environmental problems in the past (see Table 4.1 - A) compared with the present. They believed that in the past there had been greater harmony between people and their surroundings; as well as pure, plentiful water and enough to eat. They could not readily explain what caused the present problems. And they described the feeling of not being able to control what they saw as increasing environmental degradation. The previous government's apartheid policy (see 4.2.3) was blamed by some for hardships endured and for racially-biased distribution of resources.

One interviewee, Zolani, was indecisive regarding the issue of change (see Table 4.1 - B). He could not say whether things are better or worse now because it was his opinion that some things are better, whereas, other problems have arisen. As a mental health community worker, he brought to this study the perspective that things aren't always as tranquil as they appear. For example, he viewed the past as a time when many rural women bore the burdens of a patriarchal society: large families, absent husbands, strict cultural codes determining women's behaviour, little educational opportunity for women, and poverty.

Two interviewees said that they had seen some improvements, but that otherwise there had been no change (see Table 4.1. - C). The olden days' villagers apparently "Did not see their problems." Mandisa was ambivalent in her response to this question. She stated, "Things are static; there is no improvement.", but in her examples spoke mainly of improvements such as piped water. It suggests that her greater concern was something deeper that she did not voice.[8] The question about the efficacy of education in teaching people to see their problems remained unanswered in her mind. Mandisa was the only professional in the study working full time in the

[8] If an inconsistency such as this one was noticed during the interview, I would probe for greater depth or return to the issue at a later stage in the interview. Often, however, inconsistencies only came to light during data analysis.

community, and also, was the only research participant besides the community health workers to have visited all the homes in the community. I think her words express the feeling of being overwhelmed by the magnitude of the problems:

> There is so much to do. You see, there is poverty and unemployment and all those things. Well, it takes time to form that mutual relationship. Sometimes the people don't trust you. They have their own culture; what they do is *right*. So you have to evaluate what you say to them and it will take time.

Olivia said that although people might be close to nature, their general health is inferior at present when compared with the past. If this is a common feeling it could explain the lack of confidence in health education and also the basis for frustrations and insecurities experienced by all categories of health workers trying to do environmental and health education.

The data suggests that not all of the respondents were examining the reality of the situation; it seems to me that a somewhat romanticized view of the past might have clouded some of the participants' reasoning. For if infant mortality rates (IMR) from 20 or 30 years ago are taken as a frame of reference, the rates were higher in the past. This illustrates how perceptions do not always conform to reality. What is meant by "health" to one person might be perceived differently by another. My opinion is that the classic health indicators, such as IMR, which were developed by public health officials, do not adequately represent what health means to everyone. I recommend that communities become involved in determining health indicators which could help them assess environmental problem areas.

All these discussions of problems also included an aspect of blaming and ultimately of finding solutions. Two of the interviewees said the blame for an unhygienic environment lay with the local residents themselves because they did not follow the health practitioners' advice. Thami blamed industry for air and water pollution, and for the problem of litter, perceived by her as uncontrollable. She believed that the people needed education in how to dispose of or recycle

plastic waste. It is my considered opinion that none of the interviewees accepted any blame themselves. My impression, based on these responses about who is responsible for pollution, is that thorough analysis which could unravel the *cause or causes* of pollution was not done by the professionals. However, deciding who or what is responsible for a particular problem would be a useful step in the process of analysis.

Except for the litter and water pollution issues, the interviewees did not seem to have a sense of the global repercussions of environmental issues. This is in contrast to an observation of local residents by a journalist from the Nxaruni community who said he thought the people had an understanding of environmental problems extending beyond community borders (L. Tutu pers. comm.).

After synthesizing and grouping the data, it became clear that there were certain factors which repeatedly were seen as influences on the way the respondents viewed the environment. The factors are: culture and traditional knowledge; and, issues of power and decision-making.

4.2.2 Cultural and Traditional Influences on Constructs

Turning first to matters of culture and tradition, the data suggests that for most interviewees some cherished values from their upbringing influenced the way they regarded the environment. One interviewee said it was the policy of the chief of her home village that anyone with a piece of land was required to plant a tree. Since each of the interviewees had a rural upbringing, some of their input was based, not on their experience in Nxaruni, but on their experiences in their own home communities. Opportunities for personal reminiscing were provided within the interview format, not only in response to the question on change, but also in the informal, unrecorded post-interview conversation (see 2.2.2.1). In turn, I shared my own understanding of environment. Inquiring informally after an interview about the interviewees' background provided a setting for them to express their values. Khanyisa spoke of the necessity of staying in touch with one's traditional customs as a strategy for dealing with environmental problems today. Ancestor kinship

is an integral part of Xhosa culture. Three interviewees told stories about how ancestor kinship features in their understanding of the social and biophysical aspects of environment. The influence of culture on environmental understanding is substantial. Perspectives on one's history can help someone understand issues.

The following dialogue illustrates the cultural clashes that can occur when traditions are threatened:

Olivia: And of course the olden days people knew how to look after the land, the livestock. They had all the knowledge

Myself: Did they?

Olivia: I feel that they did. Otherwise how did they survive?

Myself: And then do you think it got lost somehow?

Olivia: I think it did. Because there were these people who brought education and changed things that used to work; and made some of the people look stupid as if there was no sense in what they did. That it had to be done like this and like this and like this to work. Some people felt inferior. What they knew as being worthwhile turned out to be not so worthwhile when this particular very educated person came and told them about how to run their lives. For example, not all households have toilets. If the community health workers visit a family and tell them, 'Listen, you've got to have a proper toilet facility and it has to be built in a manner which is safe and deep enough to control the flies.' To some people you're talking Greek because they've lived for years and years, from their great great fathers they have lived like that, not having a toilet but going down to the bushes. And now you come and tell them about this!

This is an example of the conceptual tensions which have to be considered when making decisions about what and how the community health workers should teach.

4.2.3 Political Influences on Constructs

Several of the interviewees referred to power dynamics (see Table 4.1) which have a role, and did in the past, in not enabling people to reach their full potential. As examples, Zolani referred to both the apartheid government, and the "white" concept of health:

> This health concept is a Westernized one. You remember that in the past there was a lot of politics, so now there is a fear that we [public health officials] might rob these people [of their culture]. Or try to change them to be white Africans. They don't want it.
>
> There are people who resist change to keep their culture, to the extent that they just resist everything. We need to acknowledge their traditional wisdom: they knew they must wash; they knew that it is healthy to wash. But now, due to the *advanced* way health care is rendered, the people get startled, as if they are about to be robbed, or to be misled.

The fear of medical apparatus, and resistance to a technocratic approach to health, which Zolani perceived in his clients, needs to be addressed by anyone designing educational programmes for health care providers. Are his perceptions accurate? I have discovered, by talking with the community health workers, that many community residents have the views he described.

A recurring theme in the professionals' input, is that although the people now have a voice (democracy), they still need the empowerment that comes with education and skills, release from poverty, and equal access to resources. A health and environmental education programme would have to meet them where they are and go alongside them, to get to where they want to go.

Apartheid policies of the former government were alluded to by three interviewees as being the reason the community is so sorely disadvantaged today. The professional health workers, though not residing in Nxaruni (see 2.2.1), speak with the authority of intimate observers, at the same time drawing on their own life experiences in their home communities. The non-recorded post-interview sessions (refer to 2.2.2.1) provided me an opportunity to find out the extent of their experience.

Regarding local organization, Mandisa said that although in the past there were no village committees in which environmental issues could be discussed, such committees are now in place and the people are going through a period of learning how to participate fully in them. Phambili, being more familiar with provincial-level government, lamented that there is a need for inter-departmental co-operation in problem solving. In the past, before water pollution became such a problem, there did not seem to be the need for a combined effort, but today anything short of total effort would not work. Phambili did not refer to the individuals' role in solving problems other than to say that they must stop polluting and harming their health. Three interviewees, on the other hand, insisted that negotiating solutions must be done by the people themselves. Speaking of the post-apartheid freedom, Olivia said:

> Now the people are free to go to government offices to state their case in their own language.

Men were perceived by Zolani as being resistant to methods of contraception recommended by health educators, yet, at the same time seemingly unconcerned about the effects of uncontrolled population growth.

Education is grouped with issues of power because of the way it is regarded by the interviewees. Three aspects of education today were compared with the past: the quality, access to it, and health education. Aspects of interviewees' world views are evident from their comments:

> Education fails because people don't understand what you are saying: literacy is needed. (Mandisa)

> Without education people can't tell when they are being deprived of their culture by the 'highly educated'. (Zolani)

To summarize the professional health workers' input, they perceived the main improvements to be in the political sphere. As for the bio-physical environment, they saw a dramatic increase in pollution. Socially, conditions were seen as having worsened and a breakdown in many

traditional customs was perceived. Concerning education, the results hoped for had not been achieved. These results compare with the 1996 survey by Moller of quality-of-life satisfaction levels, in which satisfaction levels in social and health categories were noted to have decreased in the 10 years since a similar survey had been done (Swarts 1998). The next section presents the input from the community health workers.

4.3. FOCUS GROUP WORKSHOP: RESULTS AND DISCUSSION

The focus group topic on change given to the community health workers was, "Has the environment changed in the last 10, 20, or 30 years? Are there more problems, fewer problems, different problems? (Appendix 2) Reviewing the past was an opportunity for the workshop participants to reminisce, as in:

> Long ago there were no problems as people grew their food by ploughing and owning live stock for milk and meat.
>
> Respect was well observed.
>
> There were not as many diseases as today.

It also provided an opportunity for them to take a deeper and more realistic look at some of the present day problems against a possibly romanticized perspective of the past (see 4.2.1). The workshop participants' views are summarized in Tables 4.2 and 4.3. These are a synthesis of key ideas from the flip charts of three focus group discussion groups.

In Table 4.2, I have categorized all of the workshop feedback into the five most common themes raised by the participants: general, agriculture, health, transport and education. Items showing "3 groups" in the frequency column were those most commonly discussed: that people were able to supply their own food; and that parents could expect obedience from their children.

Table 4.2 Community health workers' perceptions of life in the past	Frequency
General	
• There were fewer problems then; life was better.	3 group/s
• Problems existed but were not taken into account.	1 "
• Sophisticated things were not available.	1 "
Agriculture	
• Land was cultivated using cattle and horses.	3 "
• People owned livestock for milk and meat.	2 "
• Medicinal herbs were dug up from the wild.	1 "
• Vegetables were collected from the wild.	1 "
• Certain vegetables were planted in the kraal for ceremonies.	1 "
Health	
• Children obeyed their parents regarding sexual behaviour.	3 "
• It was very uncommon for young girls to be pregnant.	2 "
• Traditional family planning methods were effective for married women.	2 "
• Witch doctors, herbalists and *voetvrouens*[9] provided health services.	2 "
• Births were at home.	2 "
• There were no clinics.	2 "
• There were fewer diseases.	1 "
• Homes were not well ventilated.	1 "
• There were no toilets.	1 "
Transport	
• Horses, donkeys and walking were the only means of transport	1 "
Education	
• Education was better in the past.	1 "
• People learned English from *The Royal Reader.*	1 "
• People were not concerned about education.	1 "

In response to the second part of the discussion topic on change, "Are there more problems, fewer problems, new problems?"(see Appendix 2), the focus groups gave the feedback shown in Table 4.3. Using the "broad contextualised descriptions" (Ely 1991: 148) written on flip charts by the focus group scribes, I grouped the data into three categories: increasing population as the cause of many problems (A), the experience of having lost something cherished from the past (B), and how needs and expectations are different today from in the past (C).

[9] Traditional midwives

Table 4.3 Community health workers' perceptions of the environment in the present compared with the past.
A. Problems are experienced because of the increasing population: • Life is harder than before. • Living space is inadequate. • School places are inadequate. • Housing has taken over agricultural land. • Diseases increase with population. • Contraceptives bring problems and diseases. • Children do not have respect. • There are more laws and adjustments to make.
B. Something has been lost: • Loss of control in health matters. • Loss of traditional skills. • Being crippled by poor education.
C. Some needs have changed: • We want to stay in better houses. • Clinics are necessary. • We need roads. • We want better education.

4.3.1. Culture and Tradition

The data summarized in a tabular format, such as in Tables 4.2 and 4.3, inadequately express the affective[10] aspect of the study. More can be gained from looking at the participants' own words expressing their dilemma when faced with the apparent contradictions between the values of the

[10] The affective is the participants' feelings or emotions which form an aspect of their perspective and which can communicate meaning.

past and present; not just the dichotomy between the way things were done then and now, but also the realization that what they thought were solutions to problems might be part of the problem. For example, the perception that clinics are essential, was stated when a focus group said, "People are enlightened; they no longer use herbs [for medicine] but go to doctors and clinics." On the other hand there is suspicion that contraceptives dispensed from clinics cause abnormal births, as one community health worker said, "Women give birth to three babies at a time." The inconsistency was further highlighted when, during a tea break a small number of community health workers discussed traditional medicinal plants which had been used successfully in the past. In the following weeks, when visiting the villages, I asked the community health workers whether or not medicinal herbs could be found growing locally. They said that no useful herbs grew there and they though the herbalists got them from Johannesburg. However, another community health worker in a different village said the area was rich in medicinal plants. I checked this conflicting data with an anthropologist who is familiar with traditional uses of plants and he explained that for the most part people no longer can recognize the plants which have medicinal properties (M. Hirst pers. comm.). He said this is partly due to proprietary medicines being readily available and partly to the tendency of traditional healers and herbalists to mystify the cultivating and collecting of medicinal plants.

The focus groups' general perception was that, unlike in the past, education is now more important and highly valued. Although previously the people had seemed unconcerned about it, they had wisdom, and they had the respect of their children. Whereas, now, they said that children are receiving an education, but "both boys and girls are having babies while still at school!" Where is the wisdom in that behaviour? One community health worker summed up the general frustration with the words: "There is no progress whatsoever in our present way of life...." Added to the feeling that they have not made progress, is the awareness that they have lost some of the physical stamina of their ancestors, as expressed by one woman who said regretfully that not only does she not know how to make her own shoes like her mother did, but

she cannot even walk the great distances her mother did. When discussing changing values, the community health workers had more questions than answers, such as:

> Have we lost control of our children so that they ignore our advice about sexual matters?
>
> Where is it all leading? Money is important to us now. Education is important. Education is expensive. Everything we want and need costs money, money we do not have.

In my view, the people are grappling with a dilemma in which they question why the ways of the past have been replaced by modern trends of dubious value to many people.

In the process of asking questions, even though answers were not always forthcoming, a crucial aspect of environmental education was occurring at the workshop. That is, the people worked co-operatively to understand how present-day problems came about and to analyse their contribution toward the development of the problem (Sterling 1985).

Most of the problems articulated by the community health workers were said to be due to the increased population. By referring to the many problems which were associated with population increase (see Table 4.3 - A), there is evidence that the health workers had thought through the problem carefully and realistically. They attributed the overcrowding, the demand on scarce resources, and needing to rely on Western methods of family planning to their dispensing with traditional practices, expressed in the statement, "We are more than enough [people] because we neglected the initial natural family planning."

In this part of the research, the workshop participants used their experience of present day social, economic and ecological issues to make links with the past; and in so doing, gained clarity in their understanding of the environment. We now turn to a general discussion of the data on the question of change.

4.4. DISCUSSION

In keeping with my aims of exploring the participants' understanding of environment, the points which will be developed in this section are those areas of commonalities in the data and those areas where the professional and lay health workers differed substantially.

The issues discussed by the two groups are similar except in that the community health workers did not touch directly on power issues. I'll not draw conclusions from the fact that they did not do so. As Lather observed (1986): who can tell someone that they need to be empowered? A person knows when they are or aren't empowered. It is possible it's just not an issue with them. They seemed to be very influential in the community and probably beyond it too because they frequently were chosen to represent Nxaruni at provincial and national meetings. Entries in my research diary noted that militant language was used by the community health workers when stating the community's needs, such as, "We *want* to stay in better houses!" This example and the others in Table 4.3 - C, illustrate how environmental issues can be "political levers", an insight Robottom (1987) said all stakeholders in environmental education endeavours should have.

The professionals tended to find someone or something to blame for environmental problems without suggesting there might be deficiencies in the health education program. The issues of overcrowding and resistance to contraception were common topics of discussion among the community health workers (refer to Table 4.3 - A) and they blamed the uncontrollable increase in population for most of their problems. However, population-related issues were mentioned by only one professional (Zolani). It appears the professionals were unaware of how problematic those issues were for the community health workers.

The latter explained to me that they believed their own needs and expectations had changed compared to what their ancestors needed and wanted, especially in the areas of education and housing (see Table 4.3 - C). Although not desiring the same lifestyle as their ancestors, none of the participants criticized or belittled their forebears' way of life.

Most of the community health workers believed unreservedly that life was better in the past; whereas only half of the professional health workers reached the same conclusion. My understanding is that the environmental problems the community health workers were subjected to on a daily basis were primarily *new* problems, in the sense that nothing they had learned from their ancestors could have prepared them to solve or deal with such problems. So their perception of the past was that *then* people could deal with problems which arose. But to lack the experience for solving problems like the ones they listed in this study was a helpless situation to be in.

4.4.1 Looking at the Causes

The community health workers named poverty as the cause of many environmental problems and blamed poverty on unemployment, but had difficulty reconciling their present situation with the past. There had also been unemployment in the past, but the perception was that families always had enough to eat. Today, unemployment and poverty means a struggle for food and all of the essentials. So, in their attempts to analyse environmental issues, the community health workers are left feeling despondent because the problem is so complex.

The professional health workers, on the other hand, have been trained that one must name the cause of each environmental problem so as to teach the people what, according to Phambili, "causes the hazards" in their lives. He said he tries to educate the people about environmental risks to health. Zolani said that all health workers are "preaching" the same message that every problem has an underlying cause. The weakness in this classic health education approach is that it is based on a "centre-to-periphery" model of change where experts from outside of the situation attempt to manage it. In my view, all levels of health workers together with community residents need to seek and find the causes for environmental problems which negatively impact on health in their community.

The community health workers stop short of assessing a problem to find its root cause. It is a process that they could fruitfully be a part of by asking key questions: how the problem came about? what part did I/others play in its development? what can be done to solve it? who can do it?

4.4.2 Views on Education

When comparing the present with the past, some community health workers said they thought formal education had been of a better quality in the past, but nevertheless had not been as important to previous generations. They voiced the need for a higher standard of formal education for their community. Many referred to being educated as "being enlightened." They also complained of difficulties and obstacles they personally encountered when teaching about health. The community health workers are trained by the professional health workers and rely on them to design the curriculum they use. They did not express a desire to participate in the design process.

The professional health workers, unlike the non-professionals, did not express concern about problems with formal education in the community. Many showed evidence of being bound by the ideologies underlying their training. Two examples of commonly used slogans are described below:

- Homes must be kept in a "hygienic" condition at all times.

When the term hygienic was used, I was reminded of the dogmatic phraseology of a health education message. The following example shows the dialectic which has been initiated by the interpretive research process. A house is supposed to have adequate ventilation and light to be considered "hygienic". However, the community health workers told me that their predecessors were healthy even though they lived in houses which were unhygienic by modern nursing standards (ie. houses would not have had well placed windows for ventilation). Similarly,

Mandisa explained that traditionally there were different houses for different functions such as a sleeping house, a ceremonial house, and a separate cooking house so children would not have to inhale the smoke from the cooking fire. Due to overcrowding and other factors, the traditional customary style of house construction is no longer practised.

- Clinics are essential for health.

The community health workers said, "Clinics are necessary to promote good health." Yet they acknowledged that in the past people consulted traditional healers and traditional birth attendants who had helped them. However, confusion was caused by the fact that the participants had been led to believe (from the positivist orientation in their training) that indigenous knowledge[11] is supplanted by expert scientific knowledge (Manqele 1995). There was a sense expressed by several of the lay and professional health practitioners that their teaching was not effective, especially in the areas of contraception education (family planning) and basic hygiene. The research served to bring inconsistencies and uncertainties to light giving the participants the opportunity to look more closely at their values and beliefs.

4.5 CONCLUDING COMMENTS

The data in this chapter helps fulfil the first aim of the research (see 1.2). Understanding a subject includes reference to the past. Examining historical events gives insight into how an issue developed and what skills were used in the past to respond to issues. This chapter, in particular, illustrates the many individual perspectives which were shared in the research.

It has long been the practice for health workers and experts from outside of a community to *tell* people what the causes of their problems are. This chapter has shown how unhelpful that has been for Nxaruni. Using a participatory approach to assessing environmental problems would let

[11] Knowledge that is native to a region or country (Webster 1971).

the people decide for themselves what the causes for their problems are. This would be the first step towards working out solutions.

Another insight gained was that emotions play a substantial part in how someone experiences the environment. Beliefs and values influence how environmental issues, past and present, are analysed. The strong emotions expressed on the topic of change are recognizable in the language used. One theme was the concern felt that the younger generations would not respect or listen to their elders, and thus they would miss out on the traditional knowledge that should be passed down from generation to generation.

The next chapter will look at the participants' involvement in educational activities within the environment, and with the research process. It will focus on some successful health and environment projects.

CHAPTER FIVE
ENVIRONMENTAL ACTION

> *Educational perspectives offer occasions to examine complex relationships between peoples' beliefs, ideas and perceptions and the way these are manifested through actions within a given social context.* —Jessie Goodman

Community health workers are called upon, because of their close contact with the community, to help solve environmental problems such as the ones reported in the previous two chapters. The professional health workers, on the other hand, are tasked with training the community health workers and designing the course used in the training. This chapter describes two dimensions: how the health workers who participated in this research contribute to environmental education in their practice; and, their hypotheses about *what* can be done to solve environmental problems and *who* can do it. The results are based on their responses to the items 4, 6, 7, 9, and 10 on the interview schedule (see Appendix 1), reporting during the focus group workshop, my participant observation notes; and document analysis of sample community health worker training manuals.

5.1 ACTION WITHIN THE ENVIRONMENT

5.1.1 The Professionals

In response to the question, "What do you think could be done to improve the environment or solve environmental problems?", the professionals gave suggestions which are summarized in Table 5.1. I have grouped the responses into "Education" and "Miscellaneous" to accurately reflect the participants' views. It is notable that all of the ideas would require significant *change* in the status quo to occur. As I looked more closely at the "Miscellaneous" items, I concluded that they also form part of education as I see it. It is only because I was trying to accurately reflect the participants' views that I did not include all the items under the heading of "Education".

Table 5.1 What the professional health providers say could be done to improve the environment or solve environmental problems.

a. Education	Health education should empower the people. (Thami) Introduce health education using mass media. (Olivia) Implement social forestry and conservation education. (Khanyisa) Look for a different educational model. (Zolani)
b. Miscellaneous	Set a good example by living simply. (Sean) Begin to participate in community forums. (Mandisa) Improve socio-economic conditions. (Zolani) Analyse and prioritize the problems. (Phambili)

A common theme running through the table is that all the suggestions require that some *change* take place. When I asked how they thought the necessary change would come about, they replied with the following answers, which I consider to be too abstract to implement:

* sensitivity to the effects of poverty
* analysing the causes of problems
* forming relationships with local people
* collapsing disciplinary boundaries
* having a wide knowledge base
* using approaches the learners can relate to
* using community-based education

Concretizing the above suggestions, I asked, "*Who* can do the above tasks to solve environmental problems?" (See Question 6b - Appendix 1). Many of the professionals who had said education was the solution to environmental problems stressed that educational activities needed to be done jointly by the following players: government, development NGOs, health services, and especially the community health workers. A glaring omission, from my perspective, was universities! In spite of saying education is a joint effort, later comments by the respondents noted in the research diary, imply that they do not believe in it. They seemed to believe that curriculum development

should be the job of professionals; evaluation, the job of the community health workers; development, the work of development agencies; and action, the job of community residents.

5.1.2 Community Health Workers' Response

Questions about educational activities were not put to the community health workers formally. I decided that the informal group discussions which took place during my participant observation would yield data for exploring their involvement in environmental education. I took note of each time I saw them doing environmental education as I understand the concept (see 1.4), and, every dialogue with them about their educational activities.

The community health workers regard job creation as one means to improve the environment. They believe that if community residents could be employed to do such work as building roads, waste disposal or construction of toilets, conditions would improve. According to Nomhle, a CHW, "Many people have skills although they are not using them. . ." When I inquired, "Why not?", she made the familiar gesture of rubbing the thumb across the fingers to signify, "let me feel the money in my hand first". This, to me, is a huge obstacle which I cannot easily understand. I believe that to make progress towards changing the environment means people would have to be prepared to contribute to the common good without the certainty of personal gain. I see one of the tasks facing the health care providers, of whatever rank, to be in mobilizing the energies and talents of the community members.

During one village visit I had an opportunity to observe the CHW's, Bongiwe's, unique style of teaching. Rather than arriving on foot for her regular home visits in her village, this day she arrived with me in my automobile. She leaned out of the window and called out loudly as we drove past children carrying water, "Children, children, go back and turn off the taps!" Or, confronted with pigs crossing the road, she shouted to the householder, "Where's your pig sty?"[12]

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[12] Pigs are a health and environment risk factor. When left to roam free, they dig in vegetable gardens and in the heavy traffic areas surrounding houses in Nxaruni. Pigs are host to a tapeworm which can lead to cysticercosis dementia in infected individuals.

Or, as we drove on past a dilapidated mud and wattle house, she called out to a woman caring for children in her front yard, "Build a latrine!"

In response to my question of how effective that kind of teaching is, Bongiwe explained that there are often reasons why the people don't follow her suggestions. Examples she gave were, breakdown of family structure due to problems such as chronic illness (TB or diabetes) or alcoholism. Often the reasons are purely financial. A family, such as the one she admonished earlier, might be headed by an unemployed single parent dependent on a monthly social welfare grant. Their meagre income does not allow for erecting fencing around animal enclosures or building latrines. The judgemental approach to the problem belied what I interpreted as Bongiwe's instinctive understanding of the complexity of underlying causes of environmental problems. It is hoped that the research would be a stimulus for self-reflection on which teaching methods are effective and which are not.

If someone is thought to be too poor to afford to make the alterations required by the community health workers, several of the community health workers said, like Bongiwe, they would nevertheless proceed with their recitation of the standard health education messages; however, they would not really expect their instructions to be followed. I would caution that this duplicity would put pressure on the CHWs and could be what prevents families from heeding their advice. They know what problems are experienced by each family. For example, a family might have no food or need clothing to enable a child to attend school. In cases like this one a CHW could mobilize the local people to respond to problems experienced by their neighbours. The community health workers described their educational role as talking to the people about what they themselves know and do. As neighbours, they go into the homes and talk through problems with people. I recognize a participatory problem-solving engagement with the learners which is one of the approaches I recommend for environmental education. It was my observation that the community health workers adapted the content of their health talks to the particular problem they encountered in a home they visited. Indeed, the scope of topics was limited due, in my opinion, to three factors: the health workers felt some insecurity in handling certain environmental topics

because of insufficient basic knowledge; the curricula they based their teaching on offered only a narrow view of environment, and, there were sensitive issues not dealt with by unspoken consensus. The status the community health workers enjoy in the community is due to their having been trained by professional health care workers; because of their having been selected by the community structures; and because of receiving a monthly stipend from an NGO.

One of the sensitive issues I encountered was the domestic use of fossil fuel. I wanted to explore why this topic had not been raised by the respondents. I wanted to determine whether or not a shortage of firewood was experienced in the community. It was not listed among the environmental problems experienced by the community health workers (see Table 3.2). Yet I could not conclude that their concept of environment excluded trees because I knew from Mandisa's interview that smoke from open wood fires indoors was a health risk she was concerned about (see Table 3.1 - item 6). The problem of scarcity of fuel specifically was named by three professionals. So on one of my community visits I raised the issue when I saw a group of women walking towards the village with large bundles of wood on their heads. Probing deeper I learned that it is common for women to be away for up to four hours collecting wood. I did not ask details of where they went or which trees they used. I knew from personal communications that in the past in South Africa people had been fined, ostracized and publicly humiliated for collecting wood illegally (S. Mini pers. comm.). It is hoped that the social forestry project being started in Nxaruni would provide cultivated trees for fuel.

Organized environmental education activities directed by the community health workers which I observed were:

* a basket-making project for income generation (This project was planned by a group, taking into consideration the necessity to conserve the reeds along the river banks and not to disturb or pollute the river banks. Only organized cutting of reeds was permitted.);
* vegetable gardens at the clinic and the pre-schools

An educational activity which attracted wide participation from the community was the staging of a community drama on the occasion of a health day celebration. Nxaruni's Health Day to commemorate World Aids Day in 1996 occurred while I was involved with this research study. I observed how the community health workers both organized the activities and participated in the drama to achieve their educational goals. One of the community health workers told me that they made sure that school children were present to see and hear all that was presented by the adults. As I see it, the organizers wanted the children to see the wisdom, and talents of their elders to overcome the disrespect that was common (see Table 4.3). As we drove around the village, the home where the community dramas were often held was pointed out to me. The health workers were proud that they were able to stage a dramatic performance depending totally on local resources.

This example points to a dimension of effective environmental education: it can be enjoyable or entertaining and still be effective. Vulliamy (1987) said that in developing countries non-formal education had fewer constraints placed on it than formal education. This would also apply to Nxaruni.

On observing the teaching methods of the community health workers, I was surprised to see a hybrid approach being used. They seemed to use the techniques taught to them in their training for the most part, but otherwise followed their instincts and used the participatory approach they had learned from the many development workshops they are invited to attend. The community workshop on the graveyard issue that they facilitated (see 5.3) was modelled on the focus group workshop they had with me.

One of the responsibilities of the community health workers is to train the local villagers in how to construct a pit latrine. My observations showed that the number of households having pit latrines varied greatly from village to village - from a density of approximately one per ten homes in some areas, to one per home in other areas. Many of the existing ones are unsafe and in need of repair, and were built according to an outmoded design. I was told that in spite of repeated

warnings about the importance of good sanitation, nothing was being done by the residents to restore the structures. My observation on this issue is that the community health workers had not received any training since 1990 to enable them to teach maintenance of the latrines or newer building methods to replace outdated ones.

5.2 INDIVIDUAL CONTRIBUTIONS AND VISIONS

Under this heading are included the professional health care providers' theories on environmental problem-solving and examples from their own experience (see Question 7 in Appendix 1). The personal contributions they made and the number of professionals who responded in each category [in brackets] is shown below:

- training community health workers (5)
- creating awareness (3)
- setting a good example (2)
- campaigning to spread one's circle of influence (1)
- use of mass media to influence government, individuals and whole communities (3)

Khanyisa recounted:

> My own contribution is theoretical. I always encourage people to plant. I do it myself, even carrying manure.

She dismissed her contribution as being only theoretical, not really *doing* anything. Although both practical *and* theoretical knowledge together help to generate socially useful knowledge, according to Huckle (1995), it is possible that the stumbling block is that they have been using the practice of "responsible environmental behaviour" as a measure of success. They assessed their own behaviour and used it to measure the effectiveness of the community health worker training material they designed. Fein (1993b: 17), on the other hand, argued for a broader agenda for environmental education. He proposed that environmental education should be based upon

"developing the critical thinking, reflection and action skills needed to make life-long decisions about the nature of a better world and the relationship between oneself, the biosphere and other people, at local, national and global scales."

When asked if she regarded her job as a holistic health therapist as having an *educational* function, Sean said

> Sort of, but it's more participation. The learners have to put something into it. It's more experiential. They work on it and see changes. It's not a body of facts.

When I discussed an environmental education model with her, she felt comfortable that it was also not a body of facts, but was a model of the three-dimensional web she conceptualized the environment to be.

5.3 STORIES OF SUCCESSES

The professionally-qualified health workers expressed lack of assurance and confidence in their contributions to solve environmental problems, as shown by the hesitant manner used when they spoke of their impact. Lund (1993: 62) described a similar situation among the professional nurses in her study:

> As health professionals, they had gone through a training that was hierarchical and authoritarian...they had not been equipped to deal with, let alone teach others, the process of becoming an active learner, learning how to guide rather than instruct, to nurture group discussion rather than lecture, and to handle the sense of loss of control that comes when the conventional one-way teaching method is overturned.

Five professional health workers listed training CHWs as one of their contributions (see 5.2), but they did not mention their involvement in curriculum development for the CHW training course until I specifically asked about it (see Question 10 in Appendix 1). Wieneke *et al* (1994) also

noted hesitancy to take credit amongst the women in their study who felt they were not doing enough to care for their environment. In that study participants spoke of depression experienced because of the enormity of the task. Khanyisa spoke of sometimes wanting to give up. It is fortunate that Wals (1992) in the United States, and Klugman (1993) in South Africa, documented the importance of success stories in counteracting feelings of hopelessness amongst development and community workers. I think all the participants would benefit from periodic gatherings at which they take the opportunity to evaluate their programmes and enjoy recognition for positive outcomes. Using O'Donoghue's (1993) criteria I would speculate that there *has* been progress made towards "clarifying better alternatives" to environmental degradation. The examples he gave of working with people at the local level through participation in community forums and in action research, were two of the ways in which the parties in this study were involved.

Sean was rewarded by the changes she saw in her clients:

> It is so wonderful to see people change. Health is back in the hands of the one who wants to be healthy - not just physical health, but environmental, social - all aspects of health. They're seeing themselves as something more than what they thought themselves to be. They have a contribution to make. So, this is a start.

The Nxaruni community health workers planned and facilitated a community workshop on the issue of graveyards and burial practices. They wanted it to be modelled on the style of the environmental education focus group workshop I had with them. They planned it on their own. They involved several of the professional health workers who also participated in this research, although I was away and unable to attend. The workshop, attended by 68 residents, was a success in that many community residents agreed there was a need to formulate a local policy to regulate graveyard and burial planning. In this example, environmental issues were placed on the community agenda and given wide coverage, a fulfilment of one of the research aims (see 1.2).

The health workers' contributions could be termed community development because their goal

is development of their community. There are many areas where the goals of environmental education and integrated community development overlap. Ferrinho (1993: 35) refers to this convergence as an eco-systemic approach which he argues, can provide a framework to guide health-related activities. Whereas, the goals are similar, namely healthy people in a healthy environment, his linear analysis which subsumes health under development, as in the following quote, is a restrictive model:

> Health of human beings can be seen as the potential that people have to release energy for work and amusement. Thus health is a key factor in development because it conditions the way people interact with themselves, their social organization and the biotic and abiotic elements of the environment.

5.4 COMMUNICATION: SHARING VIEWS IN THE WORKPLACE

When the professionals were asked whether or not they share their views about the environment with colleagues (see Question 4 - Appendix 1), the responses indicated that the workplace was not normally conducive to such discussions. Time constraints and work pressures were the reasons given by two professionals for why environmental issues were not discussed with colleagues. Two other interviewees explained that they felt they were on a different or higher level of environmental understanding from their colleagues and could not discuss issues holistically. Not having a forum for environmental discussions meant that they tended to proceed on their own, trying to make contributions where they could. One interviewee felt that to be asked this question was a moot point because he was by title an environmental health officer having the same training as all environmental health officers, and that it was a given that they all think alike.

Four of the interviewees said that they would like to get feedback from the other interviewees to find out what others were saying. The data suggest that there is a need for professional health workers to have a forum for discussing environmental issues. Two of the interviewees who said

they do not discuss the environment at work, were employed in the same office and both were involved with community health worker-training. This demonstrates the need for the support afforded by a framework grounded in a participatory approach.

5.5 CONCLUDING COMMENTS

During the research the participants engaged in the process of reflecting on their practice in the light of current theories. The data points to the need to establish communication among the many parties in the health care team. The professional health personnel (an academic, professional nurses, a commerce graduate, a medical doctor, a social worker), and the non-professional personnel (community health workers), have to spend time talking and listening to one another. A substantial amount of time should be spent in group problem-solving.

In the examples given of successful environmental action, my overall sense is of many individual health care practitioners acting independently to improve themselves and those in their care. This led to feelings of isolation and a deprecation of their own contributions. There is a need for avenues for transformation both in the content of health education and in the teaching methods used.

A significant obstacle was seen to be their classic paramedical training not to critically assess a situation, but rather to transfer a predetermined, systematic body of knowledge to a learner. The narrow view of education displayed has restricted the health educators.

Chapter 6, the conclusion, will have recommendations for making this study relevant.

CHAPTER SIX
CONCLUSION

> *Myself: Do you think you could influence decisions that are made about environmental education in the Province?*
>
> *Mandisa: It depends on if I were to get a chance to share my ideas and experience. Sometimes you don't know where to share them and sometimes you don't get the time. I've worked with communities and I like teaching so if I could be in the position to have an input in the curriculum, that would be ideal for me.*
>
> —Transcribed from an interview

6.1 THE FINDINGS

An exploratory process has begun: a wealth of knowledge has been uncovered, experience has been related and demonstrated, and enthusiasm for the process has been exhibited. I am satisfied that the aims have been achieved. The wide range of representation by the participants who, in turn, gave feedback beyond the confines of this study, has seen that environmental issues have been placed on local agendas (see 5.2.4). They have all expressed the need to communicate with the other members of the health team. It is very likely they will do this when faced with environmental problems in the future.

Part of the frustration experienced by health care providers is their sense that their work has not been recognized. The question I asked Mandisa (see epigraph for this chapter) was asked of all the professional participants and most of them expressed the desire to become involved with curriculum development.

Characteristic of the case study in educational research are the opportunities for self-expression. Questions about environmental and health issues stimulated rich description of the context in which the health practitioners work. Encouragement to relate their own stories and their vision, gave participants opportunities to put their thoughts into words, stimulating fluency with language and use of appropriate knowledge. Questions comparing present with past ways of life

encouraged participants to think about the way things were done in the past. This encouraged evaluation and problem-solving, and allowed for expression of emotions: they asked what they have lost because of changing society. Whereas, in earlier times it might have been parents, the elderly or tribal chiefs who were the community educators, now community health workers are responsible for conducting most of the health education.

The first and second research aims (see 1.2) are linked in that the research has shown that different perceptions of the environment are held by different people and that how one perceives the environment influences an individual's or group's decisions and actions. The research has shown that everyone's knowledge and insights can lead to solutions.

The theme of change was woven through the data. The second aim stimulated thinking and discussion about how people can, and have in the past, dealt with, or engaged with the changing spectrum of environmental issues. If change is comprehended, a simple analysis can lead to the question, "What caused it?" Environmental education, with its emphasis on problem-solving, can help participants to deal with some of the dilemmas they experience for example, the paradox of why, with so much education, are people not behaving wisely?

The findings show that the selected group of health care providers constructed different meanings of environment, ranging from simply "surrounded" to a "three-dimensional network of interacting factors". Some were better informed than others. The main advantage is that by the end of the study, everyone had been given an opportunity to hear the input of some other research participants. Responding to diverse perceptions of the problematic environment, led most of the participants to ask for feedback from the others in the study. This collaboration is needed for problem-solving. Through their theorising about diverse environmental concerns, and from having described their experiences and explained to one another what issues mean to them, they can eventually reach a broader understanding. "Finding meaning and checking things against reality" (Grundy 1987: 13) is a prerequisite for effective teaching.

In my role as research-initiator, I took every opportunity to introduce a theoretical framework into our interviews and group discussions. The one that is clearly the most workable for this particular research, is the environmental education model (see 5.2). It closely resembles the health promotion model, which further matches a development education model. I think planners of health care programmes in the communities would benefit from linking themselves to development organisations.

6.2 SIGNIFICANCE OF THE FINDINGS

The significance of the research is that the process has initiated dialogue among the many different parties involved with health care in the Nxaruni community. The dialogue is linked to certain issues which in the future will need to be discussed in community fora to decide on action steps. It was surprising to see how they balanced the often opposing influences of their traditional beliefs with the Western medical model on which their training was based. Exploring the influence of indigenous knowledge and "felt needs" (Vulliamy 1987: 15) on someone's perceptions, has the function of setting up alternate frameworks for the participants to compare issues and ways of dealing with issues. If the reader relates the findings of the study to his or her own experiences, some insight can be gained.

6.3 REFLECTIONS ON THE RESEARCH PROCESS

The adoption of an action orientation within the interpretive framework occurred in response to the need to contextualize the research. In changing direction toward action involvement of the participants, the research overcame two limitations of the interpretive method, as I see it. Whereas, interpretive research usually taps individual views, in this research I saw links between the professional capacity of the participants and their view on a topic. Janse van Rensburg (1995: 5) referred to this as "collective opinion". Interpretive research is often strictly researcher-driven, But this study was different in that it involved the participants in some of the decision-making about the direction the research was to take.

There have been very few or no studies which involved community health workers in a participatory action role. That makes this study unique. Reflecting on possible obstacles which might cause a researcher to avoid a participatory ethnographic approach, I drew conclusions about why it did "work" for me. I did not enter the study as an expert, although I might have been perceived as one by the other parties. I was confident that I would learn from them and that their insights could help me answer my research questions.

The separate methods of inquiry used with the two groups, qualified professionals and unqualified community health workers, was a strategy chosen so that those participants who were not fluent in English would have the support of their colleagues in group discussions. As it turned out, using different methods of inquiry added many different dimensions to the results.

I learned the value of a workshop. In my view, the focus group workshop has evolved as one of the African solutions to the challenge of bringing people together for the purpose of raising issues, sharing ideas and working out solutions. Although workshops can be expensive because they usually form a part of a much broader study, and because they usually pay the participants' expenses, South Africa has been fortunate in recent years to have been the recipient of funding from overseas donors to sponsor workshops in the areas of health and development. The popularity of workshops using focus groups has spread and the word "iworkshop" has come into the language of health personnel in the Eastern Cape. It would be beneficial if the skill of running an effective workshop could be learned as part of health workers training. To make them worthwhile, focus group workshops should include: an evaluation by the participants before they depart; some form of distribution of conference findings, list of attendees, and dates of follow-up meetings.

6.4 THE LIMITATIONS OF THE STUDY

One of the problem areas in this study has been the difficulty interpreting omissions. For example, I reported that issues of power and decision-making were not brought out by the

community health workers, but had been a main point made by the professionals. I cannot conclude from this that the issue is of less importance to the community health workers because there are many possible explanations as to why I didn't receive feedback on that issue, such as, it was discussed but not reported back, either verbally or in written feedback, and was also missed by the tape recorder which was placed in only one out of three groups.

In another example, I could not draw a definitive conclusion about the graveyard issue from the professionals' viewpoint. Although the semi-structured interview technique has the scope for the interviewer to introduce any issue she feels will answer the questions, so many issues were discussed that a single cycle of inquiry was not adequate. If I had an opportunity to repeat the research, I would have included the professionals in the focus group workshop and would have allowed time for follow-up visits. However, the process of inquiry has been initiated in Nxaruni and it is hoped that cycles of inquiry into environmental problems will be ongoing. Therefore, this thesis does not mark the end of the inquiry.

6.5 RECOMMENDATIONS

The study has shown how a group of health care providers identify and assess the environmental problems that impact on their lives. It has shown that they have not come together in the past to discuss their understandings of environment, or recognized that obstacles they have encountered in their health care work may have roots in the tensions between traditional knowledge and Western medical knowledge. In order for the "new" knowledge that has come out of the research to be useful in improving conditions, the participants need to continue the process of inquiry to look at causes of environmental and health problems.

I think it is important for academicians to pay attention to the words we use, so that the words aren't intimidating in complexity or in pronunciation. "Environmental education" is an example of a term that could be modified for a wider acceptance. Different academic disciplines, such as health, development or education, use different terms for concepts which are very similar. I

recommend that the boundaries between disciplines be regarded less strictly. Environmental education already has a multidisciplinary approach, but there is a tendency for researchers in environmental education to use academic language. Health as a field is strictly circumscribed. Nichter (1984) maintained that Health has not had the successes of other disciplines such as Sociology in solving environmental problems because its proponents have not aligned with the field of Development. He further observed that lay health workers were being trained by professionals who also determined their function. This leads to a cycle of being restricted to health areas and to concomitant positivistic research methodologies. He argued that lay health care providers need to be taught ethnographic field work research methodologies. Based on my experience with the Nxaruni community, I concur with his findings.

There is a need for the professional development of all categories of health workers. They would be able to become actively involved in planning both the content of the modules they teach and the methods used. Through meetings, sharing ideas and experiences and learning from one another, they will find the support they need to overcome feelings of isolation. From their participation in the research, they have been introduced to how the collaborative process works. They have been equipped with skills to use as catalysts for change in their community.

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PERSONAL COMMUNICATIONS

Anonymous	Community resident
Graham-Jolly, M.	Education Department, University of Natal
Hirst, M	Anthropologist, King William's Town Museum
Makwedini, N.P.	Nursing Sciences Department, Fort Hare University
Mini, S	Geography Department, Fort Hare University
O'Donoghue, R.	Environmental Educator, Natal Parks Board
Philpot, H.	Director of the Centre for Health and Social Studies (CHESS), University of Natal
Rozani, G.	Environmental Educator
Tutu, L.	Journalist and descendent of a founding father of Nxaruni

APPENDIX 1

INTERVIEW SCHEDULE

QUESTION 1	When you think of environment what comes to mind?
QUESTION 2	What do you see as important environmental issues?
QUESTION 3	How do the issues now compare with the past?
QUESTION 4	When you discuss the environment with your colleagues do you feel that they have the same views as you ?
QUESTION 5	You have mentioned the issue of . . . . . .as being important. Will you please describe what the situation is like. Tell your story.
QUESTION 6	a. What do you think could be done to improve the environment/solve problems?
	b. Who can/should do it?
QUESTION 7	What do you feel is your own contribution to a better environment?
QUESTION 8	Do you see any kind of relationship between the quality of the environment and the health of the people?
QUESTION 9	In what ways can you share your understanding with the community?
QUESTION 10	Describe your contribution to decisions that are/might be made about educational programmes/curricula used by community health workers in the Eastern Cape.
QUESTION 11	What is your vision for the people of this region?

APPENDIX 2

FOCUS GROUP WORKSHOP TOPICS FOR DISCUSSION

TOPIC 1 When you think of environment what comes to mind?

1.a. What Xhosa words do you use for the English word environment?
1.b. What is part of the environment?

TOPIC 2 Please describe the environmental problems in your village.

TOPIC 3 Has the environment changed in the last 10, 20 or 30 years? Are there more problems? less problems? new problems?

TOPIC 4 What can Community Health Workers do to solve environmental problems?