

**POOR ACCESS TO WATER: THE EXPERIENCES OF LEARNERS
AND EDUCATORS WITHIN A RURAL PRIMARY SCHOOL IN JOZINI,
KWAZULU-NATAL, SOUTH AFRICA**

BY

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DECLARATION

To Whom It May Concern:

I, Bhanumathi Devnarain, do hereby declare that this work is entirely my own. Work that is the effort of others is accurately referenced. The work described in this dissertation was carried out in the Faculty of Law and the School of Social Work and Community Development, Faculty of Humanities, Development and Social Sciences, University of KwaZulu–Natal (Howard College Campus), under the supervision of Professor Carmel Rose Matthias.

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ABSTRACT

Water is an indispensable basic human need which is protected by several provisions within legislation. However, despite extensive legislation access to water is problematic for many rural schools in South Africa. The achievement of the Millennium Development Goals and national goals that are time bound are not possible with the structural barriers that loom. This research study, sketches the experiences of learners and educators who have been exposed to poor access to water within a rural primary school in Jozini, KwaZulu-Natal, South Africa. This research study employs a qualitative research paradigm using a case study method to provide an in-depth understanding of the schooling context where there is poor access to water. The main aim was to explore in-depth how the schooling community is affected and what coping strategies are employed to deal with poor access to water. The research study was approached using ecological systems and social justice perspectives.

Findings suggest that the consequences of poor access to water at school level are numerous and become even more complex when there is a lack of water at community level. In a compounding manner the consequences have the potential to, in the long term, have irreversible negative effects on learners and their potential to access quality education. Furthermore educators and management are placed in an invidious position to accommodate the challenges associated with poor access to water at school as part of their everyday teaching routine. Educators are failing to teach and learners are failing to learn thus the education system is rendered dysfunctional. The recommendations echo those of the participants who maintain that the community and the school must have access to water in order to improve the quality of life of all. Changes at the structural level in terms of how access to education is defined are a necessity. Co-operative governance, more stringent monitoring and evaluation of the education system, approaching education from a child-friendly perspective, adopting a human rights approach to fiscal spending and

the involvement of chapter 9 institutions to ensure social justice are examples of the structural changes required and are part of the recommendations.

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DEDICATION

A tribute to children

My Memory, Their Reality

What I saw on many of my travels for work has etched its way into my memory that surfaces each time I see water. Puny built young women walk merrily with their 25 litre empty containers in their hands trying to avoid the thorny branches, jutting sticks and sharp edged stones. At the end of their journey they come to the edge of the dam, carefully lowering their containers. In the background there is much talk and laughter as their tiny hands work away the dirt from the clothes, squeezing and wringing them tight, with splashes of water and soap suds on their dresses. Some of them immerse themselves into the icy winter waters of the dam to achieve personal hygiene. Close by are animals trying to get their fill of water. The dam is a life source for many families for whom children, mainly female children, are the link between the dam and the household and school. Their puny bodies again endure the heavy weight of the 25 litres of water on their heads, with their bare feet not always being able to avoid the thorny branches, jutting sticks and sharp edged stones. This time it's a cold winter's morning and at a distance I rub my hands to warm them up. Whilst this sight is etched in my memory it is a reality for many young children and women. Many like me remain in the distance. I vowed never to be a bystander to injustices.

LIST OF ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
CLPA	Child Labour Programme of Action
DoE	Department of Education
DWAF	Department of Water Affairs and Forestry
FBW	Free Basic Water
HIV	Human Immunodeficiency Syndrome
KZN	KwaZulu-Natal
MDGs	Millennium Development Goals
MEC	Member of Executive Council
PRA	Participatory Rural Appraisal
UDM	Umkhanyakude District Municipality

CHAPTER ONE

INTRODUCTION AND THEORETICAL FRAMEWORK

CHAPTER ONE: INTRODUCTION AND THEORETICAL FRAMEWORK

1.1 Introduction

Water is a basic human need protected by several human rights instruments. South Africa is signatory to international and regional human rights treaties that make explicit reference to access to water. These treaties bind states parties to implement the duty to provide a clean water supply to its citizens. South Africa has given fruition to the international treaties through its national legislation encompassing the right to have access to sufficient water. Despite extensive reforms in legislation regarding the right to access sufficient water, access to basic water services in 2009 for an estimated 3.5 percent of the South African population was problematic (Department of Environmental Affairs, 2010).

The schooling population is also affected by poor access to water. The situation regarding access to water in South African schools is reflected in a study commissioned by the Presidency (The Presidency & UNICEF, 2009). The study found that “11.5% of South African schools have no water source and no water near the site” (The Presidency & UNICEF, 2009:70). The study also highlights that schools most affected are those situated in rural provinces. The provinces with the “largest numbers of schools without water” are the Eastern Cape (1,135 schools) followed by KwaZulu-Natal (648 schools), Limpopo (397 schools) and Free State (320 schools) (The Presidency & UNICEF, 2009:70). The study further revealed that 61.4% of South African public schools had no arrangement for sewerage disposal and cautions that where there is an inadequate sewerage disposal service it may pose a health hazard to children. These statistics provide an indication of the scope of intervention required.

Access to meaningful basic education for children is dependent on several factors and includes access to clean water at school. Poor access to water at school

intersects with virtually every facet of the child's schooling life including health, sport, play, dignity, morale, attendance rates, nutrition, sustainable environment programmes, hygiene, educational performance outcomes, school functioning and amongst many others, sanitation. This study explores the experiences of both educators and learners regarding poor access to water in school, their coping mechanisms and recommendations to resolving access to water.

This chapter highlights the context within which this study was undertaken, the rationale, aims and objectives, key research questions, theoretical framework, value of the study and the structure of the dissertation.

1.2 Background and outline of research problem

The fundamental human need for water is protected through legislation. However, despite extensive legislation in this regard, access to water is problematic for many communities as well as schools in South Africa as noted in the introduction. This study was undertaken in the Jozini local municipal jurisdiction. It borders Swaziland and Mozambique and is situated within the Umkhanyakude District, Northern KwaZulu-Natal (see Appendix 1). Jozini is home to a large dam on the Pongola River. The researcher has been associated with this community for almost a decade and has observed that although vast stretches of water can be seen from the school and most parts of the Jozini central area, residents are confronted with situations and conditions where sustained access to water is extremely challenging. The situation becomes even more untenable when institutions, like schools, have to face a plight of poor access to water. Many schools in the area are dependent on rainwater harvesting. The area has been gripped by drought for many years leaving long dry spells making this method of accessing water, problematic.

During the State of the Nation Address in 2001, then President, Thabo Mbeki announced the Integrated Sustainable Rural Development Programme (ISRDP). The aim was to conduct a sustained campaign against rural underdevelopment through coordinating resources of all spheres of government (Mbeki, 2001). The lead

department mandated by cabinet was the department of provincial and local government as the coordinating institution. Umkhanyakude district was one of the areas identified amongst others as an area of severe neglect and where poverty is at its most endemic (Mbeki, 2001). Despite being identified as a high priority area for poverty alleviation, the district municipality has not benefited from this status (UDM IDP, 2010/2011). Designating the area as a high priority for development without the accompanying action to ameliorate the conditions is an indictment on the state. Poverty is exacerbated by the water crisis in the Umkhanyakude district.

Research conducted by the KwaZulu-Natal Legislature Research Unit (2007) regarding the water crisis in three district municipalities, Umkhanyakude being one of them, reveals the following: service delivery by government is poor and municipalities in particular are not fulfilling their mandate; most participants had either contaminated or no water; lack of water is having a devastating effect on the health and education of children; almost every participant had to fetch water with distances varying from one kilometre to fifty kilometres. The study further calls for greater research, greater accountability and greater effort on the part of the different tiers of government relating to service delivery of water. The study was concentrated on access and quality of water within the community generally and did not focus on the situation of lack of access to water within a particular sector like the schools, for instance.

The call for further research is, in part, being heeded through this research study focusing on the experiences of learners and educators regarding poor access to water in a rural primary school within Jozini, Umkhanyakude District, KwaZulu-Natal, South Africa.

1.3 Rationale

The intent of this study as stated above was to explore in greater depth conditions and situations facing the schooling community (learners and educators) regarding access to water. The interest stems from the researcher's involvement in community

development programmes involving learners and educators within educational settings in several rural communities in KwaZulu-Natal where access to water is a challenge. More specifically the researcher wanted to acknowledge children's participation in the matters that affect them and to facilitate their special insights about their life worlds and the change they want to see and experience. This is in keeping with the provision laid out in the Children's Act 38 of 2005, Section 10, on child participation. Consideration is given to the child's age, maturity and stage of development to participate in any matter concerning the child. The child has the right to participate in an appropriate manner and the views expressed by the child must be given due consideration.

Furthermore, the period between 2005 and 2015 has been designated by the United Nations General Assembly resolution as the International Decade for Action termed "Water for Life" dealing with eradication of lack of access to water (United Nations General Assembly, 2004 A/RES/58/217). This "Water for Life" decade coincides with the 2015 time-frame for the achievement of the United Nations Millennium Declaration (2000) known as the Millennium Development Goals (MDGs). Water is one of the critical components for the achievement of the MDGs.

1.4 Research aim and objectives

The primary aim of the study was to conduct an in-depth study of the effects of poor access to water on both learners and educators at primary school level. The objectives of the study were:

- To document learners' and educators' experiences regarding access to water.
- To document coping strategies employed by both learners and educators in response to challenges associated with access to water.

1.5 Key research questions

The objectives as stipulated above were achieved through the following key research questions:

- What were the experiences of learners and educators regarding access to water in the school environment?
- What coping strategies were employed by both learners and educators in response to challenges associated with access to water at school?
- What do learners and educators propose as recommendations to resolving lack of access to water at schools?

1.6 Theoretical framework

The reciprocity of the interchange between man and the environment is complex. In this study this complexity can best be explained using a theoretical framework that comprises ecological systems theory as well as a social justice perspective. Bronfenbrenner (1994) argued that in understanding human development one must consider the entire ecological system within which growth occurs. The goodness of fit of the nature of interactions between the person and the environment contributes to whether outcomes are successful or strained. He proposes five socially organised subsystems that comprise the entire ecological system. These subsystems are microsystem, mesosystem, exosystem, macrosystem and chronosystem which he purports help support and guide human growth. These subsystems are seen as a series of “nested structures” that are inclusive of but also extends beyond the home, school and neighbourhood in which children spend their lives (Berk, 2007:27). Bronfenbrenner’s theoretical approach has gained much recognition in the last two decades because it offers the most “differentiated and complete account of contextual influences on children’s development” asserts Berk (2000:27).

Bronfenbrenner (1994:39) describes a microsystem as a “pattern of activities, social roles, and interpersonal relations with particular physical, social, and symbolic features that invite, permit, or inhibit engagement in sustained, progressively more complex interaction with, and activity in, the immediate environment”. In this study, the immediate environment refers to a key developmental setting i.e. the school. Of consequence is the pattern of activities, the social roles and the interpersonal relations of learners and educators with respect to access to water in school.

The mesosystem encompasses the “linkages and processes taking place across two or more settings”, for example, the relations between school and home (Bronfenbrenner, 1994:40). Education of children is a partnership and the linkages between school and children’s home settings are critical for both the learners and the educators. Lack of access to water in the home has implications for children’s development including their education. For example, lack of water in the home has resulted in children attending school in an untidy state thereby contributing to their low self esteem (Ndlovu, 2008).

The exosystem can be explained as the “linkages and processes occurring between two or more settings in which events occur that indirectly influences processes within the immediate setting” (Bronfenbrenner, 1994:40). Processes engaged in by the national, provincial and district departments of the state, including education regarding the distribution of resources like water is especially likely to affect the development of education (learners and educators). The broad economic policy of the South African government identifies education as a key priority. According to Gordhan (2010:17) “education spending remains our largest item of spending, giving meaning to our commitment that it is our number one priority” for which R165 billion has been allocated in the 2010/2011 fiscal budget. The budget policy speech (2010/2011) indicates that the Province of KwaZulu-Natal received approximately R29 billion of the national budget and in terms of infrastructure, 200 schools will be provided with water. At the exosystemic level, this allocation towards infrastructural resources seems hardly sufficient to reach the large number of schools in KwaZulu-Natal without access to water (648) as indicated earlier in a study undertaken by The Presidency and UNICEF (2009). The impact of this is that the quality of education will suffer resulting in a weakness of capacity to take advantage of tertiary education. This will further impact negatively on the employment opportunities, social standing, health and so forth and thus the improvement in the quality of life. The implementation of legislation and policies together with the necessary budgetary

allocation must create opportunities that support the development of the other subsystems.

The macrosystem is described as the outermost level consisting of the overarching pattern of micro-, meso-, and exosystems characteristics of a given culture or subculture. These characteristics pertain to “belief systems, bodies of knowledge, material resources, customs, life-styles, opportunity structures, hazards, and life course options” that are embedded within each of the broader systems (Bronfenbrenner, 1994: 40). Macrosystems are the blueprints for the ecology of human development. The blueprints reflect a people’s shared assumptions about how things should be done (Chau-Ying Leu, 2008). This study incorporates a focus on international and regional treaties and the Millennium Development Goals.

Bronfenbrenner (1994) adds a last subsystem i.e. a chronosystem which comprises change or consistency over time not only in the characteristics of the person but also of the environment in which that person lives. In relation to the study this system will provide insight into how access to water has changed or remained consistent over a time span; what might be reasons for the changes or otherwise and what effects, if any, it has on learners and educators.

The principle of equilibrium is fundamental in an ecological systems approach. Equilibrium emphasises the importance of the “relationship between systems and the need to maintain balance between them” (Ife, 2002:45). The ecological systems theory has limited value in addressing concerns like the states’ obligation in water access provisioning for its citizens which is a rights-based issue. Compton (as cited in Kabeera, 2006) states that ecological systems theory assumes an ever changing environment to which all its layers must adapt but this is not always the case. It can be argued that the ecological systems theory, on its own, falls short of addressing the equitable distribution of resources necessary for effective growth and development. Given the limitation of the ecological systems theory, the integration of a social justice perspective is therefore necessary in this study.

Social justice can be dealt with from various perspectives. Taylor-Gooby and Dale (as cited in Ife, 2002) identified three perspectives from which to analyse social issues. These include individual, institutional reformist and structural perspectives to which Ife (2002) adds a post-structural perspective. For the purposes of this study the structural perspective will be the most appropriate form of analysis since the decisions pertaining to allocation of resources are embedded within institutional structures. The structural perspective views problems as being embedded in oppressive and inequitable social structures. It focuses on issues such as capitalism, income distribution and patriarchy. It identifies oppression or structural disadvantage as the major issue to be addressed. Attempts to bring about change in the status of social problems require major restructuring of the society (Ife, 2002).

The significance of the social justice and ecological systems framework is that it recognises the interrelationship between people and their environments and the conditions that prevail as a result of the particular social, political and economic order. Given that some rural schooling communities are inadequately resourced in terms of access to water which is linked to rights, there is a need to include social justice analysis in order to seek redress in allocation of resources to bring about a fairer society. Jamieson *et al.*, (2009) asserts that the lack of decent infrastructure infringes on the right to education, and that educational opportunities remain bound to historical patterns of inequality. De Lannoy and Lake (2009) comment that children need reliable access to safe drinking water at school given the duration of time (seven hours a day, 5 day a week) they spend at school to prevent illness and promote health. In addition, they emphasise that if children do not have access to safe drinking water at school, their right to water, health and basic nutrition is not being realised. Woodhouse (2008) in his discussion of water rights in South Africa points out that inequality of access to water resources marks South Africa's history more profoundly than inequality of access to land.

Sen (as cited in Lake and Pendlebury, 2009:23), in response to a question concerning the need for ongoing public debate on rights, is of the opinion that a

theory of human rights “cannot sensibly be confined within the juridical model within which it is so frequently incarcerated”. The assertion made is that “human rights are also moral injunctions that can be used as political tools to challenge and extend existing policies and to motivate and mobilise for social change”.

Integrating both the ecological systems and social justice perspectives unleashes enormous potential for social change towards more equitable and sustainable solutions.

1.7 Value of the study

The value of this study is embedded in a comprehensive picture that emerges of a school setting exposed to poor access to water. The findings of this study will inform the gaps in implementation of policies related to water and schools. The results of this study could be used to motivate for greater budget allocation from the South African Treasury Department for the development of school infrastructure, possibly a municipal infrastructure grant that will specifically address challenges facing schools. The results could be shared with different departments and donors to begin a discussion on the complexity of development work and possibly seek solutions in prioritising work in rural communities. Furthermore, recommendations emanating from learners and educators will act as a catalyst to motivate policy and decision makers to urgently address issues related to poor access to water in schools.

One of the key assumptions is that improving access to safe water and adequate sanitation at school will make an invaluable contribution to development, social justice, equity, human rights and to South Africa achieving the interrelated Millennium Development Goals to which it has committed. This study offers a contribution to the social work profession to demonstrate the critical importance of environmental issues and the necessity for it to be embedded in practice so that as a profession there could be improvement in the efficacy of lobbying for environmental and livelihood sustainability (Marlow and Van Rooyen, 2001).

1.8 Structure of the dissertation

The chapters encompassed in the dissertation are as follows:-

1.8.1 Introduction and theoretical framework

The introductory chapter embodies the background and outline of the research problem, rationale, research aim and objectives, key research questions, theoretical framework and the value of this study.

1.8.2 Literature review

The literature review will discuss international and regional treaties pertaining to access to water. National legislation and policies related to access to water and education will be highlighted. A contextual understanding of the geographical area will be provided through a discussion on the demographics, water sources and delivery of water services. The impact of poor access to water and climate change will provide greater depth in understanding the content of this study.

1.8.3 Description of research methodology

This chapter discusses the use of a qualitative research design to gain an in-depth understanding of the experiences and coping strategies of participants. Further discussion pertaining to the research methodology includes tools utilised to collect data, validity and reliability, data analysis, limitations and ethical considerations.

1.8.4 Presentation and analysis of results

The results are presented using themes guided by relevant literature and the theoretical framework. This chapter includes a description of the school context, experiences and coping strategies and recommendations of participants.

1.8.5 Summary and conclusions

The final chapter draws together the findings of the study linked to the objectives from which recommendations are drawn.

CHAPTER TWO

LITERATURE REVIEW

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

In order to understand access to water from a broad angled scan this chapter reviews

literature pertaining to international and regional treaties. The focus of this chapter is also on national legislation and policies related to water and the interconnection with education. The discussion on education policies highlights specific aspects like the national minimum norms and standards for school infrastructure and school status, funding and nutrition. A focus on the demographics, water sources and delivery of water services to the Jozini municipal area contributes to a more detailed view of the geographical area. The final part of the literature review will concentrate on the impact of poor access to water and climatic changes.

2.2 International treaties

Several human rights instruments provide for the right to access to water which is regarded as fundamental to human development. The right to adequate water has been entrenched in international and regional treaties to which South Africa is signatory. At the macrosystemic level Bronfenbrenner (Berk, 2000) envisages it encompassing values, laws, customs and resources of a particular culture. The international treaties representing the macrosystemic level of social organisation puts forth the fundamentals for human development within a global community. Human rights and social justice principles make it possible for ensuring survival of the global community in respect of access to water. Obligations are placed on states' parties from a global perspective to ensure that sustainable development occurs in a socially just manner. The treaties make specific reference to the right to water. South Africa together with 189 other countries is a signatory to the Millennium Development Goals (MDGs). In doing so, a global partnership including South Africa pledged to commit its resources to reducing extreme poverty. It set a series of goals that consist of time-bound measures to be met by 2015. These are commitments

made by governments “worldwide to step up their efforts to do more to reduce poverty and hunger and to tackle ill-health, gender inequality, lack of education, lack of access to clean water, and environmental degradation” (WHO, 2003:25). All of these goals have inseparable linkages with each other. One of the MDGs that specifically relate to women and children in terms of ensuring environmental sustainability (goal 7) is centred on water and sanitation. The goal is to halve the proportion of people without sustainable access to safe drinking water (goal 7-target 10) by 2015 and basic sanitation (goal 7-target 11) by 2020 (UNAIDS, 2000). The National State of the Environment Project (2005) reported that the fundamental basis for promoting good health and reducing human vulnerability is access to clean drinking water and sanitation.

Similarly, the Convention on the Elimination of all Forms of Discrimination against Women (1979), Article 14(2)(h) provides that:

“states parties shall take all appropriate measures to eliminate discrimination against women in rural areas in order to ensure, on a basis of equality of men and women, that they participate in and benefit from rural development and, in particular, shall ensure to such women the right...and to enjoy adequate living conditions, particularly in relation to housing, sanitation, electricity and water supply, transport and communications”.

The measures required for the elimination of such discrimination in all its forms and manifestations include infrastructure provision for rural communities, including schools. The eradication of barriers to education, like access to water, for children generally and more especially the retention of female children is critical in promoting education and reducing inequalities in opportunities for women’s engagement in the different spheres of societal functioning. Furthermore, the United Nations Convention on the Rights of the Child (1989), article 24(1) binds states parties to “recognize the right of the child to the enjoyment of the highest attainable standard of health ...”. In addition, article 24(2)(c) obligates the state to pursue full implementation of this right through instituting appropriate measures to “combat disease and malnutrition, including within the framework of primary health care, through, *inter alia*, the application of readily available technology and through the provision of adequate

nutritious foods and clean drinking water, taking into consideration the dangers and risks of environmental pollution”.

Another stance taken in terms of the provision of adequate water supply surfaced in 2004 where the Sub-Commission on the Promotion and Protection of Human Rights (of the UN Commission on Human Rights) adopted unanimously resolution 2004/6 (E/CN.4/Sub.2/2004/L.20) entitled “Promotion of the realization of the right to drinking water and sanitation” which “affirms that the right to water is an individual and collective human right and is closely linked to other rights” (United Nations, 2004:unpaginated).

More recently the Director-General of United Nations Educational Scientific and Cultural Organisation (UNESCO), Mr Koichiro Matsuura, addressed a session on the right to water during the 9th World Summit of the Nobel Peace Prize Laureates in 2008 in which he highlighted that many of the human rights affirmed by the Universal Declaration of Human Rights and among them the right to life, could not be fulfilled without access to water (UNESCO Water, 2009: Newsletter 212). Increasingly, world bodies are focusing on the importance of water, a fast depleting resource. In 2009, the UNESCO theme for International World Water Day was aptly on "Shared Water - Shared Opportunities" with a focus on the importance of fresh water and advocating for the sustainable management of freshwater resources (UNESCO Water, 2009: Newsletter 212). If the South African government is serious about survival and growth of its people this theme should be mainstreamed across all services and programmes related to water.

2.3 Regional treaty

Within the region of Africa the African Charter on the Rights and Welfare of the Child (1990), also make specific mention regarding safe drinking water. In the preamble this charter gives recognition to the fact that the child, “due to his physical and mental developmental needs, requires particular care with regard to health, physical, mental, moral and social development and requires legal protection in conditions of

freedom, dignity and security”. Article 14(1) states that “every child shall have the right to the best attainable state of physical, mental, and spiritual health” and 14(2)c binds state parties to the present charter to undertake to pursue full implementation of this right and in particular to take measures to “ensure the provision of adequate nutrition and safe drinking water”. The full implementation of these rights is still a distant dream for many children living in rural communities.

2.4 National legislation

This section on national legislation will pertain to a discussion on social and economic rights as entrenched in the Constitution of the Republic of South Africa Act 109 of 1996, the Water Services Act 108 of 1997, the National Water Act 36 of 1998 and legislation and policies regarding education.

2.4.1 The Constitution of the Republic of South Africa Act 109 of 1996

The Constitution of the Republic of South Africa Act 109 of 1996 enshrines social and economic rights which are based on democratic values of human dignity, equality and freedom. The Bill of Rights (Chapter 2, Section 7) is the “cornerstone of democracy in South Africa” and provides that “the state must respect, protect, promote and fulfil the rights in the Bill of Rights”. Section 27 (1)(a)(b)(c) of the Bill of Rights encompasses the right of everyone to have access to the provision for basic necessities like health care, sufficient food and water and social security. The state must take reasonable measures within its available resources to achieve the progressive realisation of the socio-economic rights (Section 27 (2)). These socio-economic rights are subject to limitations which are linked to resources. However, the in built limitation clause does not apply to section 28 (1)(c) which relates to children’s socio-economic rights which state that “every child has the right to basic nutrition, shelter, basic health care services and social services”. In addition, the rights of everyone to basic education as entrenched in section 29 (1)(c) is also not subject to the limitation clause. According to Proudlock (2009:292) “this obvious and deliberate textual difference, has led to interpretations that the realisation of the right to basic education and children’s socio economic rights should be given priority

attention by the state”. These rights cannot be viewed in isolation as they intersect with several other rights.

Whilst the right to water is entrenched in the Constitution, direct reference to the right to sanitation is not explicit. Access to water and sanitation is recognised as a key driver of human development as they impact on many aspects that shape human lives (United Nations Development Programme, 2010). The right to sanitation can be derived from other rights such as the right to a clean environment. This right is provided for in terms of Section 24(a) of the Constitution which states that “everyone has a right to an environment that is not harmful to their health or well being”.

The link between the right to water and the realisation of other rights has been commented on by the United Nations Committee on Economic, Social and Cultural Rights (UNCESCR General Comment 15, 2002). The committee articulated the public nature of water as a “limited natural resource and a public good fundamental for human life and health”. Further they held that the right to water is “indispensable for leading a life in human dignity” and it is a “prerequisite for the realization of other human rights” (UNCESCR General Comment 15, 2002:1). These comments points to the fact that the rights to water and education is directly correlated.

The right to basic education is constitutionally guaranteed by Section 29(1)(a) for both children and adults. The right to basic education is established as an “immediate right unqualified by any limitation related to progressive realisation” and justiciable which means that government can be challenged in court if the constitutional obligations are not met” (Lake and Pendlebury, 2009:19). Government’s obligation is to pass laws, develop policies and establish programmes that “protect, respect, promote and fulfil” the right to education (Lake and Pendlebury, 2009:19). The right of children to access education in the South African situation becomes fraught with barriers created by poor access to water and sanitation at school. Lake and Pendlebury (2009:19) state that the

“positive obligation requires government to take active steps to ensure that every child has access to educational facilities and enjoys the right to education. The negative obligation means that government and its agencies (such as public schools) should not impede children’s access to education”.

The Constitution designates in terms of Section 28(2) that the best interests of children are of “paramount importance in every matter concerning the child”. It is however a hollow promise for many children attending state educational facilities that do little to facilitate their optimal development. As is noted above several provisions in the Constitution address specifically the developmental needs of children but it is the implementation together with the necessary resources that become the focus in this study.

2.4.2 Water Legislation

The entrenchment of the right to have access to sufficient water in the Bill of Rights has seen further developments in national legislation. It gave rise to the enactment of the Water Services Act 108 of 1997 and the National Water Act 36 of 1998. Both Acts aim to tackle the need for sufficient domestic water for rural populations (Pollard *et al.*, undated). Although it would be logical to discuss the National Water Act first since it is the overarching framework for how water is managed in the country, this Act was promulgated in 1998 after the Water Services Act of 1997. The discussion of the two Acts will be approached chronologically.

2.4.2.1 Water Services Act 108 of 1997

In terms of Section 3 of the Water Services Act 108 of 1997 everyone has the right of access to basic water supply and basic sanitation. It stipulates that every water services institution must take reasonable measures to realise these rights within the water services development plan. The rights mentioned in this section are subject to the limitations as contained in this Act. The provision of water services by local government is undertaken in conjunction with Department of Water Affairs and Forestry (DWAF). DWAF performs a regulatory role setting standards in part, for water quality and Free Basic Water (FBW) services.

The Water Services Act 108 of 1997 defines municipal functions to ensure the provision of water services. It designates to the level of local government (district municipalities) the responsibility for progressively ensuring efficient, affordable, economical and sustainable access to water services. Although the authority to administer water supply and sanitation services rests with local government, a duty rests with all spheres of government within the limits of physical and financial feasibility to work co-operatively towards this objective (Act 108 of 1997: Preamble). Implementation of water and sanitation services is dependent on the district municipalities. The capacity of municipalities both administratively and financially vary vastly thus resulting in some municipalities implementing the policy more effectively than others (Hall, *et al.*, 2006). This scenario has resulted in “more of the non-poor than the poor” being reached because the poor are less likely to have access to water services in the first place (Hall, *et al.*, 2006: 62). The SA government provides additional support to municipalities servicing poorer communities through the Municipal Infrastructure Grant (MIG) (Municipal Infrastructure Grant, 2004-2007). The MIG is aimed at assisting the poor gain access to basic services like water and sanitation. It is a conditional grant awarded to municipalities to address backlogs in services. One of the priority actions appearing in the Integrated Development Plan (IDP) 2008/2009 and IDP for 2009/2010 for UDM noted that the “Equity Share and MIG needed to be reconsidered” given the expansive area in the District (UDM, IDP, 2008/2009:43 and UDM, IDP, 2009/2010:26).

FBW is a National Government policy framework towards alleviating poverty in South Africa. This progressive policy was in conflict with the World Bank’s goal of promoting the commercialisation of water. Prior to the revolutionary Water Services Act of 1997, the World Bank privately advised South Africa’s Water Minister, Kader Asmal, to abandon the concept of water as a “right” but to commodify water using the “threat of disconnections” (Smith, 2008:17). This advice was not heeded; instead the South African Constitution’s egalitarian principle was upheld. Kasril (2001) then Minister of Water Affairs and Forestry announced in 2001 that government had decided to ensure that poor households are given a basic supply of water free of

charge. Dugard and Tissington (2008) submitted that although the FBW policy is not directly legislated it is based on sections of the Water Services Act No 108 of 1997, as well as regulations enacted in terms of the Act, which provide substance to the constitutional right to water. The FBW policy outlines a minimum quantity of potable water at 25 litres per person per day, within 200 metres, available on a regular basis, with effectiveness of not more than one week interruption in supply per year. In spite of this policy, in 2010 an estimated 17656 households within the Umkhanyakude District Municipality (UDM) had no access to any form of formal water infrastructure (Department of Water Affairs, undated). From the literature search it is evident that the Department of Water Affairs is well aware of those who do not have access to potable water and who are reliant on sources like rivers, streams, boreholes and rainwater harvesting. These sources are unreliable during the drier winter months (DWAF, 2006). For the great many households without water infrastructure the FBW policy has not materialised. Whilst the FBW policy is subject to gradual implementation (reference is only made to provision of water to households) it is however mute on provisions to institutions like schools.

The Water Services Act sets out the role functions of the different spheres of government. Although the responsibility for the provision of water services rests with the district municipalities, whose capacities vary, other spheres of government must play a more critical role in ensuring that their objectives are met. The FBW policy has failed thousands of households in UDM who are still bearing the consequences of underdevelopment.

2.4.2.2 National Water Act 36 of 1998

The National Water Act 36 of 1998 stipulates government's role in the management of water resources. The national sphere of government has overall responsibility and authority over national water resources. This includes the allocation of water for beneficial use and the redistribution of water. It is the principal legal instrument relating to water resource management. Part 3 of the Act dealing with reserves provides the right to Basic Human Rights Reserve i.e. essential needs of individuals served by the water resource in question and includes water for drinking, food

preparation and personal hygiene and the Ecological Reserve (water for the environment).

Segal (2009:2) sums up the ethos of policy and regulatory frameworks related to water stating that “emphasis shifted from large-scale infrastructure development to issues of access, with a strong component of social equity, of ecological sustainability, of water conservation and demand management and of decentralisation in service delivery”. The management of the water resources is done on a catchment basis. The political transition of the 1990s was accompanied by fresh thinking and new energy into the way water resources is managed (Segal, 2009). For example the policy shift has been towards providing greater responsibility to locally based institutions, like the Catchment Management Agencies to manage all aspects of water resources.

The Department of Water Affairs and Forestry (DWAF) has divided the country into 19 Water Management Areas (DWAF, 2004) with the intention of each having a Catchment Management Agency. The UDM falls within the Usuthu–Mhlatuze catchment area. The findings of this research study on access to water at school level will possibly provide an opportunity to inform the Usuthu–Mhlatuze Catchment Management on the distribution of water in a way that best serves human needs to achieve social equity within their jurisdiction.

2.4.3 Education legislation and policies

The variability in quality and access to infrastructural resources in schools throughout the country is vast. The Department of Education (DoE) (2008) has acknowledged the necessity to develop minimum norms and standards for school infrastructure. The sections to follow discuss the proposed national minimum norms and standards for school infrastructure, school funding, status and nutrition. The provision of resources through legislation and policies that address the specific needs of children make it possible for society to support the favourable development of children in terms of the exosystemic framework. These resources extend beyond

the support they receive from their immediate setting (microsystem). When legislation and policies affecting education are not implemented within its full mandate then the negative impacts are felt by the children in their immediate settings like for instance the school.

2.4.3.1 National Minimum Norms and Standards for School Infrastructure

The National Policy for Equitable Provision of an Enabling School, Physical Teaching and Learning Environment (Department of Education, 2008) makes clear the need for the development of norms and standards. These norms and standards are necessary for the equitable provision of enabling teaching and learning environments as an urgent priority. In order to effect the urgency of this policy statement to creating enabling physical teaching and learning environments and addressing inequalities in resource inputs, the DOE called for comment on the proposed National Minimum Uniform Norms and Standards for School Infrastructure (Department of Education, 2008)

In terms of the proposed planning norms, basic services included sanitation and water. With regards to sanitation the document indicated that all schools will be provided with adequate sanitation facilities that promote health and hygiene standards which comply with the relevant Acts and Regulations. The document also indicated that in terms of water all schools will be provided with minimum/basic water supply as stated in Section 3 of the Water Services Act 108 of 1997. “No school is allowed to function without portable (potable) clean water” (Department of Education, 2008:80). Whilst these minimum norms and standards regarding infrastructure is envisioned by the DoE and critical for the creation of a benchmark against which schools will operate, the document has not been finalised despite the deadlines set, thus it remains without force or effect (Equal Education, 2010). The key recommendation put forth by Equal Education (2010:13) on how to improve basic education was that the “National Minimum Norms and Standards for School Infrastructure, as called for in Section 5A of the South African Schools Act, be finalised and signed into law by the Minister”. The prolonged delay in the finalisation

of this policy is unacceptable as it continues to impact negatively on a clearly defined national strategy to deal with school infrastructure. Children in schools with poor infrastructure are being placed in conditions of neglect by the state.

2.4.3.2 School funding, status and nutrition

The South African Schools Act 84 of 1996 caters for schools serving learners from the poorest communities designating them as “no fee schools”. The Department of Education (2009) indicated that by September 2008, 58% of public schools would be declared “no fee schools”. This will benefit more than five million learners in 14 264 schools.

Subsidies are allocated to the affected schools designated as no-fee schools. Control over the subsidy is dependent on whether the school is designated a Section 20 or Section 21 school. Since the school selected for this study was awarded the status of a Section 20 school, it is worth discussing briefly what this means in terms of its functioning. The South African Schools Act 84 of 1996 caters for public schools with different levels of functions, i.e. Section 20 and Section 21 schools. The key difference between the two categories of schools is that the Section 21 schools manage their own finances while with the Section 20 schools, the state controls the finances on behalf of the school (supplies for the school is handled through the DoE procurement processes). Two of the added functions amongst others, for Section 21 schools, are to maintain school property and buildings and to pay for services at the school. The school can negotiate directly with service providers. The allocation of Section 21 status is dependent on the managerial capacity of the school which includes School Governing Body, Principal and Senior Management Team (DOE Gauteng Provincial Department Circular 23/2009: Self-reliance and Section 21, 17-30). With the Section 20 schools there is little or no leverage for incidental expenditure unless the school has funding from other sources. It seems that this arrangement could place the school administration in a position of dependency which could impact on the level of efficiency with which the school operates. The bureaucracy of procurement processes in terms of the distribution of resources at

the exosystemic level is likely to place the education of children in an unfavourable position.

In order to foster better quality education the state had established the Primary School Nutrition Programme in 1994, which was later, renamed the National School Nutrition Programme to address malnutrition and hunger of children from poorer communities (Public Service Commission, 2008). In the 2009 budget speech the former Minister of Finance, Trevor Manuel, indicated that principles like protecting the poor, creating employment and investing in infrastructure amongst others had informed the budget planning (Manuel, 2009). He said that the greatest adjustment to spending plans is towards poverty reduction as well as education and healthcare, school nutrition programme and provision of basic services. He asserted that relief does not come from the money spent on the programmes; satisfaction is knowing that we are reducing poverty when the “quality of life of the poor are improving, that children are being properly educated and when learners have access to food in schools...” (Manuel, 2009:8).

It is evident that government has measures in place like designating schools from some of the poorest communities as “no fee schools” and the establishment of a nutrition programme, to supplement the care of children from poorer communities. These measures are designed to ensure that children are properly educated but they are rendered meaningless if the education of children is stymied by poor access to water at schools.

The education legislation and policies weigh heavily in favour of addressing access to schooling and improving quality of the educational experience of children. It is however disappointing to note that the National Minimum Norms and Standards for School Infrastructure is yet to be finalised. It is noteworthy that several great strides have been made by the state to improve access to education like designating some schools as “no fee schools” and the introduction of the National School Nutrition Programme to schools serving poorer communities. The different funding arrangements regarding the management of the school subsidies are also another

way that the state has attempted to assist schools. This case study will pay careful attention to the quality of the educational experience, the conditions and situations that prevail, taking into account the attempts by the state to improve access to schooling and the quality of education.

2.5 Demographics, water sources and delivery of water services to the Jozini municipal area

The population of Jozini is discussed against the backdrop of national population estimates together with income and employment opportunities within this jurisdiction. The discussion proceeds to highlight the diminishing access to water sources and service delivery and community participation in relation to water.

2.5.1 Demographics of Jozini municipal area in relation to South Africa

The population of South Africa in 2009 was estimated at 49 320 500 with KwaZulu-Natal having a population of 10 449 300 of which 3.54 million were under the age of 15 years. KZN has the largest population of children when compared to other provinces (Statistics SA, 2009). This means that a substantial proportion of KZN resource allocation and programmes that should be directed towards the plight of children is not reflected in the status of children in the province. The Jozini local municipal area within the UDM (DC27) encompasses some of the poorest and underdeveloped regions in KwaZulu-Natal. The Jozini municipality is one of five local municipalities within the UDM. Referring to the census of 2001, Jozini has a population of approximately 184 000 people, with a majority of 108 511 under the age of 19 years (as cited in Integrated Development Plan review 2008/2009). On the basis of these figures it is noted that the majority of the Jozini population are young people. Thirty six percent of the population has no income which contributes to the poverty levels experienced in the area (as cited in Integrated Development Plan review 2008/2009). The report makes mention of the migration of residents from Jozini in search of employment opportunities elsewhere (IDP review 2008/2009). According to Leatt *et al.*, (2005) high levels of unemployment is the single biggest determinant of income poverty amongst children. From the information presented one draws the conclusion that there are great numbers of children within this

jurisdiction who are of school going age and have to deal with difficulties associated with an under-resourced community. The immediate environment, the microsystem, within which children have to develop, has the potential to suffocate their developmental outcomes. This translates into a significant proportion of children entering the schooling system with fewer resources to support their development and education.

2.5.2 Water source and diminishing access

The KZN Drought Report (2004:1) reported that rural areas of northern KwaZulu-Natal had been the most affected by drought and were in a “hydrological drought situation” which relates to deficiencies in surface and subsurface water supplies. As recently as the 25 August 2009 an IFP member of parliament issued a statement to the National Assembly calling for government to intervene in the Jozini Water Crisis (Members’ Statement IFP, 2009:unpaginated). He drew attention to the fact that the area is experiencing a “crippling drought”. The member complained that several letters had been written by the UDM to local and national government seeking assistance to which there have been no replies. The municipality is in debt of R16 million as a result of the cost of hiring water tanks to supply water. The member asserted that the Jozini dam has the capacity to deliver water to the community and remains unutilised. The reasons for this remain unknown to them. The member called on the Minister of Environmental Affairs to visit the area, as well as for assistance to pay off the debt and to provide necessary assistance for a viable sustainable water supply for the community. The assumption gleaned from this interaction between the IFP and the government at the exosystemic level is that political tension can frustrate the delivery of services at the microsystemic level. The incessant lack of political intervention in the water crisis in Jozini severely impacts at the microsystemic level affecting the most vulnerable in society. A lack of synergy within the exosystem itself, coupled with a persisting ecological threat of diminishing access to water at the microsystemic level in Jozini, will have dire consequences for the effective functioning of all other systems. Discourse that heeds the call for

assistance could advance towards appeasing the plight of those affected by lack of access to water.

The Pongolapoort dam (also referred to as Jozini dam) was originally designed to irrigate more than 80 000 hectares of agricultural land supporting products such as sugar cane, rice, coffee, fibre crops and various sub-tropical fruits. The dam was primarily used for the purposes of irrigation and flood control. In 2004 the development of the Sustainable Utilisation Plan of the Pongolapoort dam was set in motion to operationalise the objectives as provided for in Section 2 of the National Water Act 36 of 1998. It takes into consideration amongst other objectives, those that promote “equitable access to water; redress the results of the past racial and gender discrimination; the utilisation of the water is efficient, sustainable and beneficial; social and economic development is facilitated” (DWAF 2004:1). However the communities around the dam are unable to utilise the water because of the non implementation of this legislation. A large proportion of households are without access to water infrastructure as discussed under the section (2.4.2.1) dealing with the Water Services Act.

Drought conditions in the Umkhanyakude district exacerbate the difficulties facing communities reliant on natural sources. According to the UDM IDP (2009/2010) low levels of water below the ground have negatively affected the use of boreholes as a means for water provision. In addition, most water catchment areas have also dried out.

2.5.3 Delivery of water services in Jozini and community participation

The Umkhanyakude District Municipality is responsible for service delivery regarding water to the local municipalities of which Jozini is a part (IDP, 2009-2010). This service is severely backlogged due to lack of funding and capacity. The UDM has projected that the water “backlog would be eradicated at least by 2020” (IDP, 2009-2010:28). From the researcher’s work within this community an important observation is highlighted: that children living in households with poor access to

water are likely to face a similar plight when at school since the bulk water-distribution infrastructure to schools is also underdeveloped. Besides poverty, unemployment and HIV/AIDS, water and sanitation has been cited as key challenges in the Umkhanyakude District. Interestingly enough Mosai (2004:795) cites amongst others that a further challenge of the Usuthu-Mhlathuze Catchment Agency (of which UDM is a part) is “political tensions”; this will have to be managed in order to carry out its legislative mandate. The prolonged period of hardships associated with poor access to water will continue to present challenges that are unacceptable, unless water services is backed by political will and fast tracked in the Umkhanyakude District. According to the Human Development Report (2006: V) the crisis in water is traceable to “poverty, inequality and unequal power relationships, as well as flawed water management policies that exacerbate scarcity”.

Greater accountability for service delivery by local and municipal structures to civil society can be increased through community participation in planning and development. Community participation in strategic planning and development is catered for within the Municipal Systems Act 32 of 2000. Chapter 4 of the Municipal Systems Act, Sections (16)(17)(18), deals specifically with community participation. It identifies mechanisms, processes and procedures and the communication of information regarding community participation. Community participation in decisions relating to identifying priorities for development in relation to their local circumstances is vital. Communities, together with municipal officials could guide municipal programmes and monitor spending and outcomes. The inclusion of communities is critical to improving the quality of lives of people especially in rural communities. Community participation must be encouraged and supported, to consider the special needs of children in relation to strategic planning and development of basic services like water. The Member of the Executive Council for Co-operative Governance and Traditional Affairs commented on good governance and community participation in the UDM in the 2009/2010 Integrated Development plan. The MEC stated that there was “no clear evidence of strategies and programmes aimed at designated groups such as youth, women and disabled could

be found” in the planning (Umkhanyakude District Municipality, IDP Final 2010/2011:21). This is testimony to the fact that greater effort is required on the part of the municipality and communities to engage in matters affecting them.

2.6 Poor access to water and its impact

Several areas of life are affected negatively by poor access to water. The negative impacts are far reaching but for the purposes of this study, emphasis is placed on the type of activities that children are involved in, impact on diseases and its linkages to children and their education.

2.6.1 Type of activities of young people

Statistics South Africa (Census 2001:176) noted that in the main African people in all age groups, particularly those in the less industrialised provinces, were less likely to have access to electricity, water and hygienic toilets even though some improvements were noted between 1996 and 2001. Jozini is mainly home to African people for whom the likelihood of access to water is bleak.

Poor access to water has consequences for the type of activities that young people are engaged in. The Child Labour Programme of Action (2007) highlights findings of a survey on child work conducted by Statistics South Africa in 1999, entitled the Survey of Activities of Young People (SAYP). The survey provided an overview of patterns of work done by children in the country. The study recorded the ages, types of work, and the length of time children spent working. Child work features high in deep rural areas and areas with commercial farming rather than in urban areas. Child work in the rural community also involves household chores of fetching water and collecting wood besides agricultural activities. Although males are involved in the collection of water more especially at a younger age, female children are predominantly involved in the collection of water and other household chores rather than the male child. More than 200 000 children spend up to 24 hours per week performing these activities. Fetching water and firewood is the most significant activity on which the greatest numbers of children are spending the longest amount

of time. The reason for the large numbers of children in South Africa engaged in the fetching of water and the collection of wood is due to the number of South African households that still have limited access to water and electricity. The amount of time spent on fetching water and firewood significantly influences the ability of many of these children to pursue an education (Child Labour Programme of Action, 2007). It is further highlighted that “the amount of water needed by a particular household will tend to increase where it includes someone ill with HIV/AIDS” (Child Labour Programme of Action, 2007:48). The assumption is that this situation will place greater demands on the children in terms of the amount of time required to fetch water resulting in lesser time for school related work. The lack of access to water and electricity must be addressed in terms of its impact on children’s education.

2.6.2 HIV/AIDS and education

Having perused the literature on poor access to water and the potential risk of disease, it would be safe to assume that both educators and learners are at even greater risk because of poor access to water and sanitation. This group must now deal with a greater burden of risk to infections due to poor access to water and sanitation further compromising their health and wellbeing. Bennell (2005) highlights a study which revealed that the HIV prevalence rate amongst teachers in South Africa was 12.7 percent and that the prevalence for male and female teachers was almost identical. Statistics of learners living with HIV/AIDS as opposed to the greater population of children living with HIV/AIDS proved difficult to obtain. However, new HIV infections for 2009 was estimated at 413 000 of which 59 000 were amongst children (Stats SA, Mid-year population estimates, 2009).

UNICEF (2004) commented on girls, education and HIV/AIDS indicating that even though the infectious agent may be the same, the risks and consequences of HIV for females and males, young women and men can be dramatically different and demands a gender sensitive response. The recommendation offered is that in stemming its spread and mitigating its pervasive impact, HIV requires the fundamental inadequacies that propagate its transmission, to be corrected. This

includes amongst other aspects, measures such as providing safe water and sanitation in all schools.

Precautions to be taken at school level in the case of exposure to bodily fluids are contained within a national policy which requires access to safe water. The national policy on HIV/AIDS for learners and educators in public schools (as cited in Western Cape Education Department, 1999) state that the MEC for education should make provision for all schools and institutions to implement universal precautions to eliminate the risk of transmission of all blood-borne pathogens, including HIV, effectively in the school. Section 7.1.3 of the policy states that “schools without running water should keep a supply, e.g. in a 25-litre drum, on hand specifically for use in emergencies. This water can be kept fresh for a long period of time by adding a disinfectant, such as Milton to it” (as cited in Western Cape Education Department, 1999:unpaginated). The sad reality is that many schools in South Africa do not have access to water and that although the policy states that water should be kept in reserve for emergencies, this cannot be given effect, as access to water for daily routine activities are already a struggle. The use of water remains a key component in implementing universal precautions dealing with blood or body fluids.

The Department of Education, Obonjeni District, within which Jozini is a part, has been noted as the worst performing district in the province regarding matric results in 2008. Ms Cronjé indicated that there was a dismal performance in which 4406 of 11365 candidates passed matric which she attributed to the resilience of apartheid and socio-economics which play a major role in performance in remote areas (The Witness, 2008). An economic assessment report by the Organization for Economic Co-operation and Development (2008: Vol 15) highlighted lack of training of educators; shortage of texts and infrastructure (school buildings, windows, running water, electricity); teacher absenteeism; the impact of HIV/AIDS; and the continued disparity between former white schools and others more especially former black schools as the key problems in the education system.

2.6.3 The burden of diseases

Poor sanitation together with poor management of water sources is the cause of the recurrent waterborne diseases like cholera in the district of Umkhanyakude (Umkhanyakude, 2003). According to The World Health Report (WHO, 2002:68) “adverse health outcomes are associated with ingestion of unsafe water, lack of access to water (linked to inadequate hygiene), lack of access to sanitation, contact with unsafe water, and inadequate management of water resources and systems...” The WHO (2003) provides information on what happens when children are exposed to unhealthy environments. A large number of children in excess of five million per year die from illnesses and other conditions caused by the environments in which they live, learn and play. The other most common cause of child deaths is diarrhoea which may result from a variety of different causes. This is frequently as a result of the child consuming pathogens or toxins from dirty hands or through contaminated water or food. Environmental risks to children can be combated through simple cost-effective and sustainable measures which can be taken at schools and at home. Washing of hands with soap before food preparation, before meals and after defecating significantly reduces the risk of diarrhoeal disease (WHO, 2003). Wittenberg (2008) explains the cause of diarrhoea as being faecal contamination of water, food, drink, toys or anything that can be placed in the mouth arising from a human or animal source. This provides an explanation as to why an

“inadequate, unsafe water supply and poor hygienic practices relating to waste disposal and personal care play an important role in the transmission of enteral infections. Acute infective diarrhoea is predominantly a disease of poverty and slum dwelling, which predispose to the above factors” (Wittenberg, 2008:46).

From the literature it is known that many children in rural schools in South Africa do not have reliable access to water. The situation is exacerbated when children are faced with similar conditions at the household level. Hall and Marera (2009:100) cite statistics from the General Household Survey 2007 which found that nearly “seven million children lived in households without access to clean drinking water” and nearly eight million did not have access to adequate sanitation facilities. The

repercussion of this is that children are exposed to health risks, or may be responsible for fetching and carrying drinking water to their homes. They indicate that lack of access to adequate water is also closely related to poor sanitation and hygiene. Hall and Marera (2009:100) in their analysis of children's access to basic services comment on statistics from the General Household Survey 2007, and indicate that "there has been little improvement in children's access to water from 2002 – 2007".

A study conducted by Lewin *et al.*, (2007:755-762) relating to the burden of disease attributable to unsafe water and lack of sanitation and hygiene in South Africa in 2000, concluded that unsafe water, sanitation and hygiene remains an important risk factor for disease in South Africa, especially for young children. The article emphasises that high priority needs to be given to improving access to safe and sustainable sanitation and water facilities, particularly in poorly served urban and rural communities in South Africa.

The KZN Drought Report (2004) highlights the importance of strengthening prevention and management of drought related health conditions. Amongst many priorities is the intensification of health and hygiene education and promotion to minimise diarrhoea, meningitis and measles which is said to be one of the three main killers during drought. Other complications due to drought can result in birth defects such as neural tube defects, limb defects and cleft lip and palate. Parasitic infestations increase during drought periods due to lack of water and inadequate personal hygiene (KZN Drought Report, 2004). This report however does not address the impact of drought more specifically on children.

The United Nations General Assembly designated 2008 as the International Year of Sanitation. The World Health Organisation (WHO) launched the first-ever Global Handwashing Day in 2008 to call attention to improved hygiene through washing hands with soap. Hand washing with soap must take place at critical moments like after using the toilet, cleaning a child's bottom and before handling food. Washing

hands with soap is hailed to be one of the most effective and inexpensive way to prevent diarrhoeal diseases and pneumonia which together are responsible for most child deaths (WHO, 2008). The contribution by experts and world authorities on the burden of diseases linked to lack of access to water cannot be underestimated. They offer simple solutions to curb preventable diseases i.e. washing hands with soap and water and yet this it is a real challenge for many schools. For many rural schools in South Africa the possibility of being able to carry out these universal hygiene standards remain dismal due to poor access to water. The initiative on improving hygiene and subsequently reducing child deaths was launched at the macrosystemic level but it does not reach the microsystemic, local level, for the benefit of the children. Without the provision of the vital resources some schools without access to water are unable to operationalise this initiative thus losing the invaluable benefits, placing children in a disadvantageous position.

2.7 Climate change and possible problems

It has been widely acknowledged that the most significant challenge of the 21st century is climate change. Sterrett (2007) had undertaken research to explore first hand the effects of climate change in Hluhluwe (Umkhanyakude District). Research findings have contributed to greater depth of understanding of the impact of climate change and the challenges people face as a result of this. Climate change is a reality and although it will affect us all, Sterrett is of the opinion that it will hit poor people the hardest. She warns that there is no time to waste. Water access in this community is slowly being depleted due to climatic conditions related to global warming. The area has experienced extended drought conditions making natural water sources unreliable (Sterrett, 2007). Professor Schulze, expert on climate change at the University of KwaZulu-Natal commented on the impact of climate change on water resources. He pointed out that not only the averages of temperature and rainfall is likely to change, but also a reduction of frost occurrences and cold spells. Drought and flood patterns will also change as a result of climate change (Dardagan, 2009).

The 4th Assessment Report by the Intergovernmental Panel on Climate Change (as cited in UNICEF, 2008:2) reaffirmed that recent global warming is a result of “anthropogenic greenhouse gas emissions”. This report calls for immediate and sustained action to halt potentially catastrophic outcomes as a result of climate change. The Human Development Report (2007/2008:198) indicates that climate change is not changes projected into the future but change that affects the present and calls for efforts to be accompanied by a “fierce urgency” to address changes particularly through nations stabilising greenhouse gasses into the atmosphere. Increasingly erratic droughts, storms and floods are already destroying opportunity and reinforcing inequality. International efforts to combat poverty will be severely undermined as a result of this. The report cautions about the danger of climate change stalling progress, and even reversing progress made over generations in addressing extreme poverty, health, nutrition, education and other areas. Interestingly in addressing climate change, the report calls for a social justice, human rights and equity approach to mitigating the changes (HDR, 2007/2008).

In terms of the chronosystem, (Bronfenbrenner as cited in Berk, 2000) changes in the environmental conditions over time can be imposed from an external source. Children who are exposed to the drought conditions, where access to water has become progressively difficult will face undue pressures in terms of their coping skills. Whilst some barely cope others fail and face severe health related problems that are sometimes fatal. UNICEF (2008:4) asserts that there is an “increasingly convincing” body of evidence that indicates that many children die as a result of fatal diseases such as malaria which is highly sensitive to climatic changes and that this disease is expected to worsen as a result of climate change. Other conditions which lead to the death of children are diarrhoea and undernutrition which is also sensitive to climate change. This information is particularly important for authorities in the Umkhanyakude district to consider when planning strategies to adapt to climate change without which survival of children will be an amplified struggle.

2.8 Conclusion

The literature concerning government intervention to address infrastructural issues particularly at the legislative level shows significant strides taken by government since 1994. Closer perusal of the evidence suggests that the implementation and the coordination of resources by the designated sectors of government in water services and education is fragmented. Service delivery backlogs in water infrastructure are acknowledged in many sources. Backlogs in water service delivery by the district municipality stretching well into the next decade and the piecemeal response from the DoE, DWAF and UDM will severely set back the development goals for the region and lead to irreparable damage to the lives of children. The backlogs will be exacerbated by climate changes for the district of Umkhanyakude which has been experiencing severe drought conditions. Furthermore, in water service delivery sparse attention is being paid to detailed planning, timeframes, outcomes, monitoring and evaluation aspects. This amplifies the fragmentation in service delivery.

Considering that Umkhanyakude district has a larger number of persons under 19 years of age and that there is a significant water crisis in the district, the specific impact on young people and vulnerable persons is not given the due attention that it deserves. Whilst there is a host of information that considers the impact of the lack of access to clean water at the community level, more specific information on the experiences of the lack of access to water at school level is needed. A detailed assessment of school infrastructure in Umkhanyakude and planning for service delivery to schools is not easily available. The cost and strategies to address climate change adaptation for children and schools is weak, in the perusal of literature pertaining to climate change in South Africa.

Also emerging from the literature is the interdependence of various factors impacting on children's right to education. There have been legislative reforms and other strategies by the state to give due attention to this right however inequalities

between the rural and urban schools abound especially in terms of water access. Difficulties arise with the implementation of legislation.

Although socio-economics are taken into account for the poor matric results in Obonjeni district, a more in-depth analysis should be undertaken regarding the poor performance. Some of the factors that do impact on pass rates are impact of lack of access to basic resources like water and sanitation, ineffective school nutrition programme, poor school governance and administration, poor school infrastructure, inadequacy in the training of educators, poor access to libraries and sporting facilities at both primary and high schools. A combination of these factors impinges on children from the early stages of their development and schooling lives and must be given specific attention when assessing educational outcomes. Due consideration should also be given to the health status of children.

The next chapter focuses on the research methodology by providing a detailed account of how the study was designed and implemented.

CHAPTER THREE

RESEARCH METHODOLOGY

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The main aim of this chapter is to outline the research procedures followed in selecting and implementing the research design. This study used a qualitative research paradigm. The method relating to the selection of the school and the participants will be discussed. Further discussion will include the data collection methods, validity and reliability, data analysis techniques and ethical considerations. The limitations of the study are also discussed.

3.2 Research paradigm

Cohen *et al.*, (2001:73) states that the “purposes of the research determine the methodology and design of the research”. The suitability of a qualitative research paradigm as opposed to a quantitative research paradigm was most appropriate for the purposes of this study. A qualitative research paradigm broadly refers to “research that elicits participant accounts of meaning, experiences or perceptions. It also produces descriptive data in the participants own written or spoken words, it thus involves identifying the participants beliefs and values that underlie the phenomena” (Fouché and Delport, 2002:79). It was therefore the choice of method utilised to accomplish the objectives of this research study.

The use of a qualitative research paradigm provided the researcher with the opportunity to explore in depth an understanding of the topic from the perspective of the participants as opposed to the outsider perspective. Creswell (as cited in Fouché, 2002) identifies a case study as one of the strategies of inquiry that could be used to design qualitative research. In this research study, a case study approach was used. Cohen *et al.*, (2001:181) states that case studies penetrate situations in ways that are not always susceptible to statistical analysis and one of the strengths of case studies is that they “observe effects in real contexts, recognising that context is a powerful determinant in both causes and effects”. According to Punch (as cited

in Silverman, 2005) the basic idea is that appropriate methods will be used to study one case in detail, to develop as full an understanding of that case as possible. The ensuing discussion will focus on the following aspects: selection of the case, sources and procedures for data collection, data analysis, validity and reliability, limitations to the study and ethical considerations.

3.3 Selection of school

In order to develop an in-depth understanding of the experiences and coping strategies of the learners and educators where poor access to water is prevalent, the study was undertaken at one primary school located in Jozini within the UDM. According to the DoE demarcation, Jozini is a ward which falls within the Obonjeni District. There are 43 schools in the Jozini ward of which the majority (29) are primary schools (Education Management Information Systems - Education Statistics, 2008). The school in this study was purposively selected by the researcher based on her knowledge of the area and prior work with the department of education.

In 2006 the Crisp Trust with support from Oxfam Australia (South Africa Field Office) was involved with the development of multidisciplinary networking forums to address challenges facing orphan and vulnerable children. One of the challenges identified related to food security. The Crisp Trust garnered further support from a United Kingdom based charity organisation, Seeds for Africa (2010), to assist with the promotion of a food security initiative in the Umkhanyakude district. Schools that could benefit from such an initiative were selected by the DoE. Unfortunately many of the schools selected did not have sustainable access to water which limited their involvement. The school chosen as the case study in this research was part of the initial DoE selection. The school is in close proximity to the Jozini dam but does not have access to a sustainable water source. The purposive selection of the school was informed by the location as well as background knowledge of the researcher of this schooling community. Permission to conduct the study was granted by the Department of Education, school management and the School Governing Body.

3.4 Participants in the study

Learners in grade 7, educators and a School Governing Body member were invited to participate in the study. The sample comprised of the following categories of participants:

- Learners: The school caters for learners from grade R to grade 7. The grade 7 class consisted of twenty learners of which ten were males and ten were females; all were included in the study. It was anticipated that the experiences of males and females in relation to access to water at school during this period of their life would differ from each other. Further, it was anticipated that the experiences of grade 7 learners would differ from that of the lower grades in relation to access to water. Consideration was also given to the fact that within this grade and age range, there was a high likelihood of the onset of puberty which brings about different challenges for males and females at school. Therefore focus groups were held with males and females separately. Participation was voluntary.
- Educators: all seven educators and two members of management were invited to participate on a voluntary basis.
- School Governing Body: a letter was addressed to the school inviting the participation of the SGB and a representative agreed to participate voluntarily.

3.5 Data collection

Cohen *et al.*, (2001:112) is of the opinion that “exclusive reliance on one data collection method may bias or distort the researcher’s picture of the particular slice of reality” being investigated. The “use of two or more methods of data collection in the study of some aspect of human behaviour” could be defined as triangulation (Cohen, 2001:112). The exploration and description of a case is conducted using “detailed, in-depth data collection methods involving multiple sources of information that are rich in context” (Fouché, 2002:275). The data collection methods utilised for the

purposes of this study were semi-structured one-to-one in-depth interviews, focus groups, observation and a participatory rural appraisal tool.

3.5.1 Semi-structured one-to-one interviews with educators

Greeff (2002:302) is of the opinion that researchers use semi-structured interviews to gain a “detailed picture of a participant’s beliefs about, or perceptions or accounts of, a particular topic” through the use of “pre-determined questions” to guide an interview rather than be dictated by it. Semi-structured interviews allows for the researcher to pursue certain interesting avenues that emerge in the interview and the participant to provide greater depth in the discussion. Semi-structured one-to-one interviews (see Appendix 2) were held with six educators and two senior management members. In addition, a joint interview was held with one educator who understood English and isiZulu because the SGB member did not speak English. This assisted both the SGB member and the researcher to understand each other through translation by the educator.

3.5.2 PRA - Activity Clock - learners

As a way of generating information and insight, in a non-intimidating way, into the water related activities, the study used an activity clock which is a Participatory Rural Appraisal (PRA) tool (Trent, 2007 and Valstar, undated) (see Appendix 3). The activity clock with learners was administered before the focus group discussions. Learners were given an hour and fifteen minutes to complete this activity individually. The activity clock (PRA tool) helped learners to creatively plot the different water related activities that they are typically involved in, during the day. Learners plotted their activities on the clock spanning a period from early morning until nightfall. These activity clocks were collected by the researcher after learners had completed the task. The product of their work on the activity clock was analysed before the focus group discussion. This provided the researcher with further questions for discussion and clarity which were explored in the focus group. The rich information emanating from the activity clocks together with questions noted in the focus group interview guide informed the thematic focus of the group discussions.

3.5.3 Focus groups with learners

Access to water is a common problem for both males and females but impact is thought to be different. Therefore two separate focus groups were held – one with female learners and one with male learners. Greeff (2002:307) maintains that focus groups, as a method of data collection, creates a “process of sharing and comparing among the participants” and is considered a “powerful means of exposing reality and of investigating complex behaviour and motivation”. Focus groups are especially useful in attempting to understand diversity since it helps one understand the variety of others’ experiences (Greeff, 2002). Focus group discussions with learners were facilitated through the use of a focus group interviewing guide (see Appendix 4) which listed the topics and issues to be covered. The range of topics was informed by key research questions, literature and experiences of the researcher as well as questions which emanated from the PRA tool, the activity clock. The purpose of the focus group interview guide is to keep the topics and issues central to the interview, while at the same time being flexible to probe into unanticipated circumstances and responses (Rubin and Babbie, 2005).

Focus group interviewing as a qualitative technique offers many advantages. According to Berg (1998:104) advantages include allowing the researcher to observe the interaction amongst the members of the group, “to access the substantive content of verbally expressed views, opinions, experiences and attitudes” which could be explored further. Berg (1998:104) is of the opinion that “give-and-take interactions” in the focus group lead to spontaneous responses from members. Focus groups in comparison to individual interviewing, require far less time to interview the same number of participants in the study however “substantially less data than individual interviews” are produced (Berg, 1998:105).

All interviews and focus groups were audio recorded with permission from the participants. Smit *et al.*, (as cited in Greeff, 2002:304) state that a “tape recorder allows a much fuller record than notes taken during the interview”. Patton (as cited in

Rubin and Babbie, 2005:457) suggests that this technique should be backed up by “notes” taken by interviewers during the interview. The researcher heeded this suggestion and supplemented the audio recording with written notes. Transcripts have been produced using the audio recording and the notes. It was initially planned that the focus groups would be conducted within an hour and fifteen minutes during school hours at the convenience of the school. However, the focus groups with learners took approximately two hours as they all wanted to be heard. Thus the researcher provided them with the opportunity to give their accounts without curtailing their inputs. Furthermore, clarification questions emanated from the activity clocks, which added to the time required for focus group discussion. Additionally, at times, some learners required assistance with translation from English to isiZulu. Learners who were bilingual assisted with the translation which impacted on the amount of time required for the completion of the focus groups.

3.5.4 Observation

Cohen (2001) maintains that observational data are attractive as they provide the researcher with the opportunity to gather live data from live situations. Morrison (as cited in Cohen *et al.*, 2002:305) claims that observations enable the researcher to “gather data on the physical, human, interactional and programme setting”. The observation of the school setting in relation to water related activities took place on three different school days with approximately a three week lapse between each of the days. The researcher documented multiple observations, starting before the school day commenced, to afternoon when school terminated. This was done early in the morning, between interviews, during break times and when activities related to water took place, like delivery of water to school or when the cook required water from the tank for food preparation for the day. Some aspects on the observation schedule included location of taps/water tanks, whether children carried water to school, types of containers used, storage facility for water, food preparation, and availability of water for hygiene purposes and consumption of water. An observation schedule had been developed for this purpose (see Appendix 5).

3.3 Validity and reliability

Bogdan and Biklen (as cited in Cohen *et al.*, 2001:119) assert that in qualitative research, reliability can be regarded as the “degree of fit between what researchers record as data and what actually occurs in the natural setting that is being researched”. Two aspects they highlight are the degree of accuracy and comprehensiveness of coverage of the data. According to Stiles (as cited in Rapmund and Moore, 2002:26) reliability in qualitative research refers to the “trustworthiness of observations or data”, whereas “validity refers to the trustworthiness of interpretations or conclusions”.

The question of validity can be summarised as “a question of whether the researcher sees what he or she thinks he or she sees” (Flick, 1998:224). “Triangulation in qualitative research can be important to issues of validity” state Berg (1998:114). In ensuring the study’s trustworthiness, the researcher has deliberately included the strategy of triangulation where divergent sources (educators, SGB member, learners and observation) could provide further insights of the same events or relationships. Furthermore the credibility of research findings was enhanced through theoretical triangulation, i.e., use of different theories (ecological systems and social justice) and data collection methods. The study also employed different data collection methods such as focus group interviewing, in-depth interviewing, use of a PRA tool and observation.

3.4 Data analysis

De Vos (2002:339) states that data analysis is a “process that brings order, structure and meaning to a mass of collected data”. Hubert and Miles (1994) view qualitative analysis as consisting of three concurrent flows of activity: data reduction, data display and conclusion drawing/verification.

The responses from the interviews and focus group discussions were transcribed. The transcribed data together with observational data and information from the

participatory rural appraisal tool, the activity clock, were analysed. The data was analysed using “thematic analysis” (themes emerged from the data) and “content analysis” (coded by categories) (Dawson, 2002:115-118). Berg (1998:223-224) broadly defines content analysis as “any technique for making inferences by systematically and *objectively* identifying special characteristics of messages”.

In terms of the data reduction the researcher used themes and sub-themes and created codes that were representative of the data at hand. The use of a NUD*IST computer programme designed specifically for qualitative data analysis was used (Gahan and Hannibal, 1998). Interpretation of the data was facilitated through the use of the ecological systems and social justice theoretical framework which served as the basis to show connections between micro-level events and the larger social forces and to explore more precise questions that future research can answer.

3.5 Limitations

There are several limitations to the study. Firstly, only one primary school specific to a geographic area was included in the study. Caution is raised in the generalisation of the findings. However the intention of the study was to provide in-depth data rather than to generalise the findings. Secondly, some participants preferred to express themselves in their first language which is isiZulu. This preference was honoured. Translation from isiZulu to English may have resulted to some degree, in loss of essential meaning. Thirdly, the choice of focus groups as one of the preferred methods of data collection may be regarded as a limitation to yielding truthful and free flowing information even though confidentiality was ensured.

3.6 Ethical considerations

Some of core ethical considerations taken into account in this study included informed consent, personal privacy/anonymity/confidentiality and preventing harm to experimental subjects and/or participants.

3.6.1 Informed consent

Hakim (as cited in Strydom, 2002:65) asserts that informed consent is a “necessary condition” not a “luxury” or “an impediment”. Bailey *et al.*, (as cited in Strydom, 2002:65) stress that emphasis must be placed on “accurate and complete information” which will allow participants to fully comprehend the investigation and thereafter make a decision about their participation which is voluntary and thoroughly informed.

Correspondence in writing concerning the potential research study was sent to the school inviting their participation. It contained details of the objectives of the study, consent issues and logistics. The correspondence to the school was accompanied by the letter from the DoE granting permission for the research study. The principal of the school and the chairperson of the governing body responded in writing and agreed to participate in the study. The researcher was granted permission to conduct the research at their school. Consent forms were provided in isiZulu for the parent/caregiver as well as a consent section for the learner to read and sign (see Appendix 6). Each learner was given two consent forms, one for the parent/guardian to sign and retain as it contained details related to the research study and contact details of the researcher and the research supervisor. The other consent form was returned to the researcher via the learner for record keeping purposes. In addition to the consent forms being signed by parents and learners, the assent form (see Appendix 7) was explained to learners in isiZulu by an educator to ensure that all information about the study was disclosed. In the explanation, recognition of their right to refuse or to withdraw from participation without negative sanction of any sort was highlighted even though consent was obtained from their parent/caregiver. Learners were given an opportunity to clarify any details of the study. This enabled learners to fully understand what was going to be asked of them so that they could make an informed decision about their participation or otherwise. Learners were provided with an assent form which they subsequently signed accepting to participate in the study. Consent was also obtained from educators regarding their participation (see Appendix 8).

3.6.2 Personal privacy/anonymity/confidentiality

Berg (1998:48) asserts that in most qualitative research, subjects are known to the researchers and “anonymity is virtually nonexistent”. Thus, it is important to provide subjects with a high degree of confidentiality. The consent form highlighted that the confidentiality of participants will be protected by ensuring that information shared with the researcher will be kept strictly confidential, only the primary investigator and the research supervisor will receive the data provided and the identity of participants will not be disclosed in any reports on this study.

3.6.3 Harm to experimental subjects and/or participants

The responsibility to protect the participants against harm goes beyond trying to repair or an attempt to minimise such harm afterwards but rather ensuring that “participants should be thoroughly informed beforehand about the potential impact of the investigation” offering them the opportunity to withdraw from the investigation if they want to (Strydom,2002:64).

There is little likelihood that personal harm of a physical or emotional type would have resulted in a study of this nature. In addition to the adherence of the above ethical principles, the researcher is a trained Social Worker registered with the National Association of Social Workers, South Africa and the South African Council for Social Service Professions. The researcher has previous work experience with children and adults in research related projects.

3.7 Conclusion

This study utilised a qualitative research paradigm. A case study provided the best possible approach to achieve the purpose of the study. The sample comprised management members, educators, a school governing body member and learners. Since only one school was part of the study, the generalisability of the findings is limited. Triangulation of data sources, theories and methods were used to ensure reliability and validity. Ethical issues for the research study were carefully considered

to ensure ethical practice. Chapter Four encompasses the analysis and discussion of the findings.

CHAPTER FOUR

ANALYSIS AND DISCUSSION OF FINDINGS

CHAPTER FOUR: ANALYSIS AND DISCUSSION OF FINDINGS

4.1 Introduction

This research study has yielded rich data. In this chapter, the data will be described, discussed and analysed to give meaning to the responses pertaining to the experiences of learners and educators with poor access to water within a rural primary school in Jozini. This study used a qualitative paradigm to provide in-depth understanding of the experiences and coping strategies of educators and learners with poor access to water at school. The responses of the participants are analysed using themes and sub-themes. These are tabulated and discussed.

This chapter comprises broad thematic areas which have resulted from the responses to the questions in the semi-structured interview guide, focus group interview guide, observation schedule and the activity clocks completed by learners. Section A provides a description of the school context from the perspective of the researcher and from the perspectives of educators and learners on the school's access to water. Section B discusses the consequences of lack of access to water at school, gender, climatic changes and dwindling water sources. Section C concentrates on coping strategies and Section D presents the recommendations put forth by the participants.

Section A

4.2 Researcher's observation of the school context

The school can be regarded as a microsystem. In this section discussion of the description of the school context is provided initially from the observations of the researcher and then from those of the participants.

Observations were carried out on three separate school days during the data collection process. The researcher visited the school in June 2009 early in the morning for the primary purpose of beginning the data collection. The researcher

was greeted by excited young learners with broad smiles who were intrigued by her presence. The air was cold and crisp with the outside temperature of about 12 degrees gradually warming up to around 19 degrees during the course of the day. The entire school was shrouded by a haze of mist until about 10.30 when the misty conditions cleared. There was a distinct breeze bringing fresh cool air from the direction of the dam. The school is located on the top of a hill approximately 500 metres from the bottom of the Jozini dam. The scenic setting of the school was breathtaking.

Goats roamed the school property freely and were comfortable with human presence. Being winter, there were tufts of dried grass scattered about the school yard. In most places the earth was bare. The bare earth was being eroded by a breeze that was picking up the dust which made breathing difficult. At the end of the school property is a broken down shell of a building which is currently being used as the kitchen for daily food preparation. The two opposite side walls are approximately two and a half metres high while a third adjoining wall was about a metre high. The wall to the entrance of the building was about a metre high and about a metre long. The extent of the floor space was approximately 5 by 3 metres. The building had no roof. This school is designated as a recipient of the state nutrition programme. Meals were being prepared in this broken down shell of a building. The hygiene standards were extremely poor. In the centre of the floor a wood fire burned and the cook was frantically trying to fight off the dust and grit that was being deposited by the wind. She was trying to prevent the dust from getting into the food while at the same time trying to maintain the fire. Lunch was being prepared for 214 learners and educators and consisted of 15 kilograms of cooked rice, boiled cabbage and soya mince soup.

The researcher had observed that the school had no on-site water connections. On the researcher's first and second visits, the school had one old JOJO (name branded water tank) tank used for rainwater harvesting. The researcher was told that a second JOJO tank which was also used for rainwater harvesting was damaged by strong winds and was now beyond repair. The tap at the bottom of the existing JOJO

tank had been shut off to prevent community members from accessing the water. The researcher observed that water for cooking was being drawn from the JOJO tank by three male learners during lesson instruction time. One learner climbed on top of the JOJO tank which was approximately two and half metres. A bucket to which a rope was attached was passed to the learner by other learners standing at the bottom of the JOJO tank. The learner on the top of the JOJO tank lowered the 20 litre bucket carefully into the tank and drew approximately 15 litres of water. The bucket containing the water was then lowered to the learners standing at the bottom. The researcher inspected the water drawn from the JOJO tank. The water in the bucket appeared discoloured and contained some foreign particles. One of the educators who were being interviewed at the time mentioned that sometimes there are worms in the water. On the researcher's third visit in August 2009, it was observed that the school had three newly installed JOJO tanks through support from a non governmental organisation called the Mvula Trust. These tanks however were empty because there was no rain. Reliance on rainwater harvesting proved ineffective and alternative sources of water had to be tapped into.

4.3 Educators and learners description of the school's access to water

Participants were asked to describe the situation at school in relation to access to water. Several questions were raised to obtain as holistic a picture as possible, regarding access to water. These questions included the following: where the school accesses water from, who brings it to school, how much and what containers are used, when the school has the most/least water, how many times in the last week has school had water, has there been any changes over the years in the amount of water available at school and what are some reasons for these changes. Specifically learners were asked how caregivers responded to them bringing water to school. Educators particularly were asked what steps were taken to secure access to water at school. The responses to the questions on school's access to water are integrated into the following themes and sub-themes identified in Table 4.1 below.

Table 4.1: School's access to water: Themes and Sub-Themes

Themes	Sub-Themes
<ul style="list-style-type: none">• Lack of sustainable sources of water• Accessing water from the community• Funding water access	<ul style="list-style-type: none">• Spring and borehole• Rainwater harvesting• Rivers/dam• Seasonal access to water• Learners bringing water to school• Educators bringing water to school• Community resources• Section 20 school• Donor funding• Negotiating with municipality, DoE, and DoH

4.3.1 Lack of sustainable sources of water

The question relating to where the school gets water from was met with several different responses. The sub-themes below provide a clear indication that access to sustainable sources of water is unreliable at the school level.

4.3.1.1 Spring and borehole

Educators who had been at the school for several years talked at length about the lack of access to a sustainable source of water since 1994. Educators did inform the researcher that in the recent past there was a water source in close proximity to the school. This was a small underground spring and a borehole that worked for a while. However their observation has been that over the years water access has become more difficult as the borehole and the small underground spring gradually dried up. One educator said that “...the boreholes are totally dry...” Another educator commented that the school had access to ground water about 15 years ago. However the educator pointed out that

“...water is getting less because... we had a dam (referring to a spring) just down next to the school... we used that water to do cleaning for the toilets. Now it has run dry. In summer it does have water. At first it used to have water right throughout 1994/ 95/ 96, thereafter it went dry. The members of

the community were dependent on the water for washing, drinking, even the cattle used to drink there. But now it is dry...

Educators were forced to look for other sources of water.

4.3.1.2 Rainwater harvesting

The school is dependent on rainwater harvesting as one of its mechanisms to access water but it is not a sustainable source. Male learners were unanimous in their responses as to where the school gets water: they said *“...from the rain if it is raining...”*. One response sums up the unsustainability of this method of securing access. An educator said that between September to December there is *“...lot of rain, the tanks fill up but it does not last long, two to three months then it is finished...”*.

Generally the responses indicate little or no rainfall from March to September. For a school that is dependent on rainwater harvesting, a period of six months without rainfall will undoubtedly present many challenges.

4.3.1.3 Rivers/dam

Educators and learners indicated that rivers and the dam were a source of water that was regularly used. An educator mentioned that learners are asked to bring water to school using their own containers and that sometimes they bring it from the river. This water is not purified. Another educator said *“...we tell children to go to the river and bring water when there is no water for cooking.... it is five minutes from here. They go during school time...”*.

Male learners and educators mentioned the dam as a source of water. An educator said: *“...the dam is about 5 km from the school which has dangerous animals like hippos and crocodiles. During break time the learners go to the dam because the gate is open, but we warn them not to go because it is dangerous...”*.

Whilst these may be sources for quick access to water, it is not purified which present grave risks of diseases. The findings suggest that learners face further risks.

Their safety is also being compromised either by their own accord going to the dam during school time, or by instruction from the school during their lessons to fetch water. Either way learners are predisposed to danger.

4.3.1.4 Seasonal access to water

Generally there was agreement that the school had greatest access to water between September and December. Responses relating to the least amount of rainfall covered a period between March to August. Many participants indicated that this is the period when there is little or no rainfall. One participant said: *“...April to July it is very, very dry...”*. Most participants concurred that access to water has become progressively worse for the school during the winter months. They indicated that food production has become a problem and at one stage the school had planted vegetables but is not doing so anymore because the boreholes have dried up.

Participants were asked what they thought the reason/s were for the changes in access to water. Most participants commented on changes in rainfall patterns and climate changes stating that now there was a lot of wind, thunder and dry periods. One educator indicated that planting of crops usually starts in August, but she said *“...the area is very stony and cannot get plenty of food. Last year there were some good rains but before that it was dry two years before 2008, it was very dry...”*. Male learners said they observed that the seasons were changing saying there was, *“...lesser rain, more dryer...”*.

One educator provided a more detailed account of how the seasons have affected food production and its impact on children. She said

“...it is getting worse. I arrived here in 1994. Over the 15 years there is no improvement in water access...The conditions have got drier. The communities don't have those green gardens, fields where they plant mealies and mfino (spinach), now nothing, they don't plant mealies here. Unlike other places we used to see kids coming with cooked mealies at school. The kids here they don't understand what is summer and what are the benefits of the summer season they do not see anything greener around them...”

Other responses included:

“...I think, it is the changes in the environment.....maybe it is the global warming, changes in the climate with hotter, and drier conditions...”

“...Why I am saying the climate is not good the boreholes are dry...”

When asked whether access to water was improving one participant said, *“...no, not improving it is getting worse before there was a garden we used to plant vegetables now it is dry, dry, dry we cannot plant anything...”*

Generally participants linked change in access to water to climatic changes except for one educator. This educator was vehement in responding to this question by saying

“...I don't think the problem lies with the climate... because we have the biggest dam around us. The problem lies with our municipality. They should have already or long before put this area under greater access to water. Just here in Jozini they have a lot of water they are using the same dam. Why don't we get water? If the community and municipality work together with the councillors and the principal should come together and go to the ward councillors so that the councillors can be pushed to go to the municipality. They must pressurise them to do this because these kids are the community...”

The findings pertaining to change in access to water and its association with climatic changes are supported by other research. Badenhorst of DWAF (as cited in Attwood, 2008: 2) in an interview in 2008 highlighted that for the past six years the Northern KZN area (an area covering Vryheid, Nongoma, Mtubatuba and Mozambique - within which Jozini is located) has received less than seventy five percent of its average rainfall when calculated against the long term average rainfall for the area. All small dams, boreholes and streams in the area have dried up. He added that world literature on droughts held that if an area experienced less than seventy five percent of its rainfall for three years in succession then it qualified as *“...an event of disastrous magnitude...”*. He said that the World Health Organisation deemed sixty litres of water a day per person to be the minimum requirement to sustain optimal health and hygiene standards. Badenhorst highlighted the difficult position that

communities in drought stricken areas are in. He said that communities have agreed to receive fifty litres a day for the entire household. In this instance we see that drought conditions are exacting difficult conditions on communities. When compared to the World Health Organisation standards for minimum water requirement for optimal health and hygiene, people in the drought ravaged areas who have to survive on fifty litres per household will struggle in their everyday lives to maintain optimal health and hygiene.

These findings are typical of changes in climatic conditions affecting natural water resources and hampering food production. Varying rainfall patterns, increasing dry and hot weather are associated with climatic conditions which are related to global warming (Sterrett, 2007). Whilst more rain coupled with high temperatures have been predicted for KZN with positive and negative spin-offs (Dardagan, 2009), this community has not yet experienced the positive spin-offs.

Springs and boreholes are not an optional source for the school as these have run dry. Rainwater harvesting as one source has proved to be unreliable due to erratic rainfall patterns. Sources include the Jozini dam and nearby rivers which are unprotected water supplies. This situation leaves the school with an unsustainable access to a water source which results in numerous challenges towards achieving quality educational outcomes. The data indicates that changes in the climate with hot and dry conditions and different rainfall patterns is having hazardous effects on water reserves and consequently on the functioning of learners, educators, the school as a whole and the community. Food production has also been raised consistently as a challenge. State authorities responsible for water distribution are not meeting their goals especially to drought affected areas.

4.3.2 Accessing water from the community

The findings indicate a strong emergence of the following sub-themes which include learners bringing water to school, educators bringing water to school, and the school accessing water from community resources. These are presented below:

4.3.2.1 Learners bringing water to school

Female learners in the focus group provided the following response saying that the school management made requests to the learners to bring water from home. One female learner said that “...*learners are asked to bring water for cooking....Many children brought water for cooking...*”. The other learners in the focus group concurred.

Six female learners indicated on the activity clock that they bring water to school. Three indicated that they bring water in two litre containers and three learners bring a litre of water. During the focus group discussion the female learners clarified how many of them did bring water to school. The researcher heard that seven out of ten female learners brought water to school; four carried two litres of water and three carried a litre of water each.

The activity clock completed by male learners gave a different scenario. None of the male learners brought water to school. During the focus group discussion, this observation was noted with the male learners and they confirmed that none of them brought water to school for personal use or for cooking because they said that there was no water at home. Another reason cited by the male learners for not bringing water to school was that the dam is too far to fetch water.

While at school one male learner indicated in the activity clock, in the time slot 09:30 that “...*it is time to drink water...*”. It is not certain where the learner got water from as it was not indicated on the activity clock that he brought water to school. The possibility is that he could be sharing from someone that did bring water to school as the learners have indicated that they do share water with their peers.

All male learners in the focus group indicated that “...*girls go to fetch water for the school...*”. They confirmed that none of them are involved in fetching water for the school, as they have a preference to do other chores.

The senior management member’s response confirms that learners bring water to school. She also commented on her observation of the quality of water accessed. She said that “...*at times when the drought is at its worst they bring dirty water from home. I don’t know where they get it. It is muddy. They drink muddy water...*”. The response from another educator confirmed that children are asked to fetch water for school during school hours saying “...*we tell children to go to the river and bring water when there is no water for cooking. They go during school time...*”.

Learners were specifically asked about the responses from their parents/caregivers about requests from the school principal for water from home. Male learners indicated that there was no response to their requests for water because they did not have water at home.

Female learners indicated that the responses from their parents/caregivers were:

“...sometimes they say the waterkant (water tanker from the municipality) must supply the water; some say the principal is not thinking about supplying water in school; many parents/caregivers are not happy to give water as they have to pay to get water for home and that the principal has to organise to get water...”

The interactions between home and school are typical of what Bronfenbrenner (1994) would regard as a mesosystem where linkages and processes take place across two or more settings. Seemingly, added demands for water are being made by the school to an already under-resourced community with little or no access to water, thus compounding the negative response of parents/caregivers. The linkage between home and school in this instance indicate a lack of synergy.

4.3.2.2 Educators bringing water to school

One educator indicated that she used to bring to school a two litre bottle of water everyday which she used to share with learners and other educators but has stopped since her health is failing and she is unable to manage carrying a heavy bottle. She has since reduced the amount of water that she brings to school which is for personal use only. The senior management member indicated that sometimes the educators come with twenty litres of water for school but are faced with complaints from taxi drivers that the taxi is not a water tanker. They demand a separate fare (which is the same fare charged for a person) for the twenty litre drum of water.

4.3.2.3 Community resources

All educators indicated that it was difficult to source water using the community as a resource. An educator said *“...it is difficult to ask the community because we know the community does not have...”*.

An SGB member provided clarity on how the community gets its water, the regularity of the supply and the position of the school regarding this water. She said that

“...sometimes the municipality send a truck to supply the community. Once per month. The tank is opposite the school. It last two or three days then the water is finished. Each family might get eight to ten 25 litres (drum size). There is plus- minus 25 families using this water. School is not allowed to take this water...”.

The quantity of water received by the households and the frequent interruptions between supplies is in contravention of the FBW policy as discussed in Chapter Two.

Attempts by the school management to access water from the community tank were met with difficulties. The school has tried to draw water from the community tank outside the school. However the school was being prevented from accessing the water because of tensions between the school and the community over this water which is scarce resource at present. Members of the community are unhappy because water is supplied infrequently (once per month) by the municipality and they now have to share this water with the school. This is placing a severe strain on the

households and the school as they compete for this scarce resource. This finding contributes to a further understanding that children are impacted upon by the poor access to water in both the home and the school.

Bronfenbrenner (1994) incorporates the concept of proximal processes for the purposes of human development which relates to regular interaction over a period of time. The type of interaction that is taking place between the school and the community reflects animosity and conflict. The school places a burden on young learners to accommodate requests to bring water from their homes which is not easily accessible. The frequency and quantity of the supply from the municipality to the community are inadequate for their own use let alone sharing it with the school.

It can be noted that the sub-themes related to accessing water presents major difficulties. Learners have been asked to fetch water during school hours. This results in loss of instruction time and places greater burden on the adolescent female learner in particular. In addition, educators are also placed in a difficult position that demands tasks which are beyond their expected call of duty, like transporting water using public transport and paying a full fare for it. The regularity of this type of interaction deviates from that which should be taking place for educational purposes in terms of allowing learners to develop complex skills for their effective development. Learners are placed in a position that does little to foster their development. In order to further the aims of the DoE to promote girls' education, and the MDGs related to access to universal primary education, as well as achieving gender equality, essential changes have to be made to interactions within the schooling community. Essential to changing the interactions, and thereby the situation in relation to access to water, is access to safe water sources.

4.3.3 Funding water access

Three sub-themes have been identified which illuminate the difficulties associated with structures that create severe barriers to access to education.

4.3.3.1 Section 20 school

There are instances where the school does not have access to water because they do not have the money to fund its acquisition. This is primarily due to the nature of the arrangements regarding the administration of funds which is handled by the DoE. The school in the study is a Section 20 school which means that the subsidy allocated to the school by the DoE is managed by the DoE through a procurement process. All requirements of the school are submitted using a requisition process. The difficulties in the requisition process of the DoE were outlined by the senior management member who said that “...*they do not acknowledge receipt of them (requisition request). They give you a book you are left with the duplicate (in the requisition book). The forms are handed in at the circuit office and the circuit office takes it to the district and the district office will send them to the procurement section...*”. The senior management member expressed dismay about the functioning of the subsidy through the requisition process. She also explained that it took time for the processing of the requisition and the consequence of the requisition not being processed timeously. She expressed her frustration by saying “...*when you do requisition the year goes by without getting the things that you ordered. I made a requisition for cupboards, cleaning materials, renovations it was last year June and my (school subsidy) R42000 was frozen...*”. The balance of the subsidy allocated in 2008 which was R42000 was forfeited at the end of 31 March 2009. This was apparently due to the requisitions not being coordinated in an efficient manner by the DoE which resulted in the full budget not being utilised.

Clarifying whether the state subsidy covers the costs associated with access to water, the senior management member said “...*it does not provide anything for water...*”. If the DoE intended to have an effective centralised administration for schools that fell into the Section 20 category, it is certainly not an efficient arrangement for this school.

4.3.3.2 Donor funding

Access to water is dependent on payment. Water is brought in as required every second day according to the senior management member and more importantly as

funds become available. An amount of twenty five rand is paid for transport of each two hundred litre drum. A senior management member said that the school paid the SGB member for the transport costs for water from Jozini which is less than ten kilometres away from the school using a two hundred litre drum. Another educator provided further insight into the financial arrangement with the SGB member saying *“...he wants money before...”*.

The circumstances that present when there is no access to funding for water is highlighted in the following response. An educator said *“...the school did not have money to get water from Monday to Wednesday...”*. This was the situation at the school during the week of the interview. Currently the school utilises funds received from a project called the Media In Education Trust (MIET) a non governmental partner of the DOE in KZN. This school has been identified as a centre for care and support to improve the lives of orphaned and vulnerable children. The school receives one thousand rand per month deposited quarterly into the schools banking account. Monies from this source is spent on assisting learners by paying for transport for learners to attend school, applications for identity documents, grants, uniform, sanitary pads, and so on. A member of the management said *“...if there is no water, we use it (the funding) to get water...”*. Without the donation from MIET the participant was unsure of how the school would access monies for the transport of water. She added that

“...I really don’t know. This last time when I had a van I used to go down to Jozini and fetch water but at the moment I really do not know. It is even difficult for the parents. They do not have water....”.

These responses describe the schooling context in relation to access to water. It also provides insight not only into the different sources being tapped for water, but also the costs, how it is funded, and how lack of access to funds can cripple the school functioning of the school.

4.3.3.3 Negotiating with municipality, DoE, and DoH

One of the questions put forward to educators and the school management related to what steps the school has taken to secure access to water. A school management member was asked specifically whether they had approached the DoE regarding water access and the response was “...yes we did, they know that we do not have water but they are doing nothing about it...”. In addition an educator made the following comments:

“We are surrounded by the Jozini Dam but the water did not reach us as far as the tap construction is concerned. It makes me angry because.....we are on the main road, everyone sees us. This water goes to Mkuze while we are nearby. But the municipality did not start here. It is unfair for this area. I am not speaking politics here but it is unfair If the area is dry they will say there is not water but this area is very rich in water. Why don't we have water? There is a councillor here but they do nothing with the school, they have water, electricity in their home all things they got but they can't use (their influence) to organise for this school but I think it is because of political. They can use their influence to get water for the school. It is their place not our place”.

When asked for clarity regarding “politics”, his response was “...I say that because if you want to do something, they ask if you have that IFP card, if you don't, they can't help you Even that municipality in this place it is for IFP...”.

One educator raised the issue of protocol that should be followed in addressing water access and said that

“..... we can't afford to do anything because the councillors will have talk for us In the community you must follow the protocol, we can't afford to jump the councillors and we must first put our grievances to the councillors...”.

There seems to be a lack of communication between the ward councillor and the school. The ward councillor plays a vital role between the local government structures and the local community. The responsibilities of ward councillors are explained by Paradza *et al.*, (2010) which is to articulate the needs of the residents to the council as well as give ward residents a progress report on decisions of the council in committing resources to development projects and programmes affecting them, assess whether the municipalities' programmes and plans are having their

intended impact, assess whether services are being delivered fairly, effectively and in a sustainable way, determining whether capital projects are being committed in accordance with the Integrated Development Plan, staying in close contact with their constituencies to ensure that council is informed of all issues on the ground and conveying important information from council to residents.

Additionally, a participant said that there were discussions with the Department of Health (DoH) about water at school and hygiene issues. However the DoH representatives always referred them to the municipality and the school has had little success here. A senior management member indicated that the municipality was also approached to supply water to school and mentioned that

“... since the water tanker no longer pours water for us at schools we went down to the municipality. They said that the tanker is for the community not for the school. The DoE must put money in the municipality so that the municipality can put water (in school). So the municipality is not providing water. They say it is the responsibility of the DoE...”.

Another educator also mentioned that attempts were made to convince the water tanker drivers from the municipality to distribute water to the school saying that *“...we asked some of the drivers to (bring water) but they say we must pay for it. They can't give us without money because we are falling under the DoE...”*. Another educator reaffirmed this request for water from the tanker drivers and said that *“...when we used to ask them to come and give us fifty metres away they can't. They say that it is for the community. They do not supply the school...”*.

The findings on the funding for access to water reveal severe structural barriers which impact on education. This school which is a section 20 school does not have immediate control over its own funding. The school relies on funds from MIET and this will terminate at some point. It seems that donor funding is the only feasible way for the school to access clean water. Negotiations with state authorities like the municipality, the DoE and the DoH have been shown to be unproductive.

The findings in this study differ from the position held by the DoE. In October 2007, former Member of Executive Council (MEC) for Education, Ms Ina Cronjé acknowledged that water is a scarce commodity in the rural schools. She stated that the water and sanitation programme of the DOE includes the provision of water tanks. She reiterated that the “actual provision of water to the water tanks is the responsibility of the district municipalities” (Province of KwaZulu-Natal, Department of Education, 2007:unpaginated). The lack of clarity about whose responsibility it is for delivery of basic services is indicative of poor communication amongst the school management, DoE, the district municipality and DWAF.

The competency of water and sanitation services to schools was moved from the DoE to the DWAF in April 2007. DWAF is the custodian of South Africa’s water and forestry resources. DWAF regards the minimum standards for basic water supply at school as fifteen to twenty litres per learner per day (assuming the use of flush toilets) and a water supply terminal per one hundred and thirty persons within two hundred meters of the main building (De Lannoy and Lake 2009). Inaccurate information and missed target dates by government departments resulting in development efforts being hampered are highlighted in the following examples:

- The DoE presented a report to DWAF on the status of schools regarding water and sanitation. In the report it was noted “...that there were no backlogs in water and sanitation services in schools in KZN...”. However inspections by DWAF found that this was not the case. The DoE set 2005 as the target date for water and sanitation services to schools, but failed to meet the target date which resulted in a “significant backlog” in service delivery. (Parliamentary Monetary Group, 2007:unpaginated).
- In an attempt to eradicate the backlogs in the provision of basic sanitation and water services to all, DWAF too had set targets through the Water Services Medium-Term Output programme. The projection of their output was that in 2007/8, “5% of schools backlog in services” would be accomplished. By 2008/9 it was anticipated that “100% of schools backlog in services” would be

eradicated (DWAF, 2007/8:52). Evidently this has been an over-ambitious target since the school in this study and many others in the area of Jozini have not been provided with potable water infrastructure or proper sanitation services.

This situation is indicative of a lack of co-operative governance which detracts from the goals of service delivery. From a systems perspective there is an indication that the “goodness of fit” between the macrosystem, microsystem and all other systems in between is skewed resulting in confusion regarding the role function of each of the systems. Approaching this situation from a social justice perspective, ineffective service delivery of basic services impacts negatively on the opportunities for people to design their own destinies.

Section B

4.3 Consequences of lack of access to water at school

The consequences resulting from a lack of access to water for both learners and educators are multiple and complex. Several themes and sub-themes emerged which are discussed hereunder.

Table 4.2: Consequences of lack of water: Themes and Sub-Themes

Theme	Sub-themes
Personal Functioning	<ul style="list-style-type: none">• Physiological functioning• Behavioural functioning• Emotional functioning• Cognitive Functioning
School Functioning	<ul style="list-style-type: none">• Loss of Instruction time and school attendance• Curriculum – achieving educational outcomes• School Nutrition programme• Health and hygiene promotion• Sanitation• Menstruation• Illnesses and diseases

4.3.1 Personal functioning

Participants were asked what happens in relation to their personal functioning as a result of lack of access to water. Several sub-themes emerged and included physiological, emotional, behavioural and cognitive aspects.

4.3.1.1 Physiological

Learners often complained of hunger and thirst. Male learners said they felt *“...hungry and thirsty and there is no water...”*. A senior management member said that *“...learners complain about thirst in such a way that we have to lock the water. When the drum is outside they drain it all and the soya mince that they eat is salty so*

after eating this they need to have some water...". The soya mince is one of the meal types in the school nutrition programme. The senior management member was asked why she could not make the water available to learners and her response was *"...no I can't..."*. The reasoning behind this was *"...there is no source of water around this area, there is no river. I keep this water so that they can eat the following day. It is better in winter they do not get as thirsty as in the summer..."*. Thirst emerges frequently in the responses from educators and learners as a key consequence of not having water. What is noted is that learners' need for water is exacerbated by seasonal changes and the demand is greatest in the summer. Insufficient water intake can lead to dehydration. Other symptoms of dehydration besides thirst include "dry mouth; rough, dry skin; weight loss, weakness, light headedness and low blood pressure; rapid, weak and irregular breathing; lack of energy; and dark urine or decreased urination. If the body is not immediately provided with fluids, prolonged dehydration can lead to kidney failure, changes in blood volume and chemistry, and eventually death" (Sigman-Grant, 2005: Vol 8 (5)). These symptoms partially provide an explanation as to why learners are often seen to be weak, small built, sleepy, listless and tired by their educators.

Male learners were asked what happens to them and their friends when there is no water at school. They all said that *"...there is no playing when there is no water..."*. An educator from the foundation phase had this to say about her learners, *"...they are not active in the class, not at all, seems as if you are talking alone, they are sleepy, crying now and then, especially foundation phase learners, others complain of stomach aches..."*. Another educator said that one of the consequences of poor access to water was that learners do not do exercise they just read.

These findings are supported by the observations of another educator, *"...learners become thin, not active, not playing, jumping, and they are not active, most of them. Even while they are walking you can see something is lacking. They are not walking tall and confidently, can see there is a problem..."*.

Smuts and Wessels (2005) acknowledge that exercise and physical activities are dependent on a variety of variables. Aarnio (as cited in Smuts and Wessels

2005:116) identifies the variables as “gender, race, age, intentions, depression, previous physical activity, sensation seeking, being sedentary after school and on weekends, encouragement from parents to exercise, parents' direct help and the opportunity to exercise”. Emphasis is placed on the benefits of physical activity for children which are the development of self-esteem and generally a healthy quality of life. Vidyya and Aarnio (as cited in Smuts and Wessels, 2005:116) identified schools as the “key promoters of physical activity among children, as most children attend schools”. Poor access to water at school appears to have far reaching consequences for learners as their opportunities for physical activity at school is curtailed.

4.3.1.2 Behavioural functioning

The effects of lack of access to water on the behaviour of learners also emerged. The research data suggests that learners are motivated by the need to satisfy their thirst even if the behaviour is socially unacceptable. Educators responded as follows:

“Some learners steal from others and they quarrel with the other who took their water”.

“They sometimes try to break the tank looking for water to drink. ...they tell us that they are thirsty but there is not much help that we have. Not all the children carry water. They are used to drinking water outside of school”.

An educator offered this response about the behaviour change she observed on days when learners did not get a meal which is part of the nutrition programme at school:

“Their behaviour changes, if you send them to do anything they shake their heads and refuse to follow instructions. They make a lot of noise, you cannot teach, they say ‘Ma’am, I am hungry”.

The effectiveness of teaching and learning is thwarted by behaviour associated with the need to satisfy thirst and hunger due to lack of access to water.

4.3.1.3 Emotional functioning

Learners were affected emotionally especially when the nutrition programme is disrupted by the lack of water. Male learners said *“...we feel so bad; not ok; get*

upset; get angry because food not available...". Female learners were also of the opinion that when there is no water at school things becomes *"...more difficult because sometimes they do not cook at school.....it is so bad..."*. They also said that grade R learners cry when there is no water in school.

Generally educators indicated that learners get emotional when they are hungry as is evident in the following responses:

"The reaction of learners when there is no food is that they become very sad, because some are really hungry, there is that anger in them".

"They are very poor and some don't even eat at home. Some of the children cry because at home there is no food and when they come to school there is also no food. When a learner cries then we know it is serious. If you talk to the learners they will tell you that they are hungry and that they did not eat in the morning and they have pains in their stomach".

Lack of water and the detrimental effect on their health was expressed by male learners specifically who said that they were feeling *"bad"* not drinking water and that they were concerned about their health and worried that they *"...won't be healthy..."*. The concern about personal health expressed by the male learners goes beyond their immediate life stage. This relates well to Bronfenbrenner's (1994) discussion on the chronosystem. There is a protracted period (from 1994 to 2010) in the learner's schooling lives at this school where access to water has been progressively poor. The implications are that there is bound to be a negative impact on the health status as well as emotional wellbeing of these learners over time.

4.3.1.4 Cognitive functioning

Cognitive functioning was also reported to be affected. Poor access to water resulted in the school not having cooked meals on some days which created a situation where learners were complaining of being hungry. Male learners described what happens to them when there is no water at school. They unanimously agreed with each other saying they *"... cannot listen and concentrate because we are hungry..."*. One male learner personally described what happens to him; he said *"...my mind is blocked..."*. In the focus group with female learners they too indicated that they have

difficulties which they narrated as “...not easy to write and listen to the teacher, don’t listen carefully...” and one learner said “...I’m thinking I wish I can get food...”. There was correlation between the responses of the learners and those of educators. One response from an educator sums up what others have said

“...as you can see in this area in summer it is very, very, very hot, you find children sweating and they need water and there is no water. I think it is not a healthy practice for children not to have water and it also affects their concentration. During this period when there is no water you will find that the learners are not concentrating they are just dull...”.

According to D’Anci *et al.*, (as cited in Water UK, 2006) there have been a small number of studies looking specifically at the effect of dehydration in children. These studies show that poor hydration can adversely affect childrens’ mental performance. Cheshire (as cited in Water UK, 2006) noted that there has been a reported improvement in concentration levels, academic performance and pupil behaviour in schools where water is provided throughout the day. Cian *et al.*, (as cited in Water UK, 2006:unpaginated) reports that in a water provision pilot project in the United Kingdom, teachers in school reported that “the enhanced water provision contributed to a more settled and productive learning environment, as well as helping instil good habits.” Water reduces tiredness, irritability and distraction from thirst and can have a positive effect on pupils’ concentration throughout the day.

Much emphasis has been placed on the detrimental impact of unsafe water and unhygienic conditions on children under 5 years. UNICEF (2006:6) draws attention to the fact that exposure to unsafe water and unhygienic conditions have an impact on the “health, attendance and learning capacities of school-age children” as well.

4.3.2 School functioning

Many consequences of poor access to water have emerged in this study. These are discussed under a second broad theme, school functioning. Several impediments were raised by the participants. Those that featured prominently are discussed as sub-themes which include loss of instruction time and absenteeism, curriculum - achieving educational outcomes, health and hygiene, nutrition programme,

sanitation, menstruation and illnesses and diseases. These sub-themes are presented below.

4.3.2.1 Partial loss of instruction time

Inadequate access to water at home and school is causing a ripple effect on teaching and learning. An educator commented that the school is not functioning well because the learners come late. A grade 4 educator said “...*children always come late and very dirty...*”. Washing clothes and cleaning themselves is problematic as there is no water at home. The aspect of personal hygiene due to lack of water was raised by another educator as well who said

“...at one stage we had to close the school, the children were smelling badly. They could not wash because there was no water in 2007. We closed for two days...”

The loss of instruction time seems to occur on a consistent basis where learners are sleeping in class or are sent home during the school day. One educator said “...*sometimes we have two to five children that sleep; they take tablets in the morning. There are about three that take tablets in the morning...*”.

Another educator also spoke of learners taking medication at home without eating. She said they come to class complaining of stomach ache after taking the medication at home. She also said that they “...*come to school feeling sleepy...*”. One senior educator’s experience was different in that she said that some learners who are on ARVs come to school feeling unwell. When the learners are asked about their ill-health they say they did not take their pills “...*because there is no food at home, there is no water*”.

When learners complain of excessive thirst and there is nothing the school can do the educator said “...*we send him (learners) home, whereas we know that at home there is no water...*”.

A similar response about sending learners home was received from another educator who said:

“...those that complain about stomach aches are sent home because they might get food which will make them feel better... if not diarrhoea they stay in class. You cannot medicate a learner if they are sick. If a child tells a teacher that they are hungry she just comforts them and tells them to wait until the school day ends. It makes her (educator) feel sad because imagine how they feel as children not to have food...”

The senior management member expressed difficulty with learners who become ill at school. She said:

“...especially with the infants, grade R, they usually “spoil” (defecate in their pants) themselves. We send the children home. We usually take (ask) the older children to send them home which are detrimental to the older ones because they miss some of the lessons...”

When asked about how often it happens she said “...once in two weeks...”. The senior educator mentioned that the older learners are asked to accompany the younger learners back home during school hours.

Learners who come late, sleep in the class, those who are sent home and those that accompany them due to hunger or health related issues face partial loss of instruction time. The educators’ work schedule is also affected as they have to manage these situations affecting learners on a day to day basis. The school management seem to have limited options available to them under these circumstances. Sending learners home during school hours might be the only option. The danger of this is that the school and the state faces a great risk of liability should learners encounter danger along the way home from school during school hours.

4.3.2.2 Absenteeism

Some of the reasons associated with irregular attendance involve learners going to fetch water a long distance away from home. One educator said:

“...they tell me that they go to fetch water far away so they absent themselves... Generally there are four or five learners who have irregular attendance because of water related issues. They go looking for water. Sent by their parents, they go barefoot, walking, they go two kilometres...”

A junior grade educator said that some of the reasons that she received from learners for not attending school were: learners had to go to the community tank to get water or they had not washed their clothes or they had to go to the dam to fetch water which is a long distance away from their homes or that their school clothes were wet or they had received water late to wash their clothes or there was no water to cook food at home.

A similar response was given by an educator who teaches grade 3 learners who said that some of the reasons learners gave for missing school related to not washing their uniforms because of not having water at home; they did not eat the previous day because there was no water at home and that they had to go to the Jozini dam to fetch water. She said in her class she generally had six to seven learners absent daily due to water related issues. Another educator said that the consequence of lack of water was *“...poor attendance in my class of twenty six. Daily attendance used to be nineteen or twenty; it is rare when there is twenty six out of twenty six...”*. She also added that there are other learners who come to school but they are disinterested in learning, her opinion being that these learners come to school only because of the food. A grade 4 educator said learners are *“...always absent and always around ten... (are absent)”*. An educator said that sometimes there may be no water or meals for an entire week and....some do not come to school. They return to school *“...when the water is back then those who are at school pass the message around to the others that the water is back...”*.

The responses from learners provided greater insight into why learners miss school. Male learners in the focus group said they missed school due to the following reasons

“...because we have to bring water to the home from so far, not washing clothes when no water, no water to wash uniform, no water (at home) then there is no breakfast, sometimes because we are sick...”

Three out of ten male learners said they missed school about two times a month. Two female learners said they might miss school because they have no water at home. Some reasons for not attending school included when the teacher goes on

courses and there is no one to look after the learners at school, when school is not cooking meals and if the person who cooks does not come to school. Whilst male learners' reasons for not attending school were either personal or connected to mainly what happens outside the school, female learners' responses were associated directly with what transpires at school with minimal concentration on what happens outside school. A possible explanation for this could be that within the home environment female learners are assigned the school related tasks like washing of uniforms. Male learners are assigned other tasks like tending cattle.

According to the information collated on the activity clock, the time of the female learners were deployed predominantly in household chores of cooking, fetching water, washing clothes and doing homework. Male learners however were engaged in similar household chores with three learners indicating their involvement in herding cattle in the afternoon. None of the male learners indicated time spent on their homework. These situations might allow little time for male learners to deal with school related activities thus their reasons for not attending school are predominantly related to activities outside of school.

In a study conducted by Community Agency for Social Enquiry (CASE) and Joint Education Trust (JET) for the DoE on learner absenteeism in the South African schooling system, it was found that socio-economic factors were predominant in explaining absenteeism. These included "poverty, transport, illness, lack of parental involvement and food insecurity" (Weideman *et al.*, 2007:9). Lack of facilities at school level including water was mentioned as a reason for absenteeism. Water as a socio- economic factor at the community level did not feature highly in the CASE and JET study on learner absenteeism. Perhaps the lack of access to resources more particularly water, in this instance at the community level should be investigated from the perspective of the broader schooling population in terms of its impact on school attendance and education. Partial absenteeism from school should also be investigated since there are many reasons associated with access to water that are featuring in this case study.

According to Saholiarisoa (2009) most schools in Madagascar have no access to running water. This results in the lack of hygiene and sanitation which is also a major problem for learners. Many pupils fall sick regularly, are unable to attend classes and hence do not perform well at school. A 2009, Madagascar National Institute of Statistics study “confirmed that lack of access to drinking water directly relates to the percentage of children missing school, particularly due to diarrhoea. About 3.5 million school hours are lost each year in Madagascar, the study found, calculating that of the 2.5 million school-going pupils those who fall ill need about three days to recover” (Saholiarisoa, 2009:unpaginated). UNICEF (2010) indicates that children lose 272 million school days due to diarrhoea. Water related problems both in school and at the community level have the potential to impede consistent attendance at school thereby affecting education outcomes. Furthermore learners who attend school but who do not participate in lessons due to the reasons discussed above, also present a challenge to their continuous acquisition of skills and learning outcomes.

Many accounts are provided on the functionality of schools in relation to poor access to water. The consequences of this are the loss of instruction time and absenteeism. Instruction time is lost when educators are absent and this affects the younger learners emotionally as pointed out by the focus group with female learners. Educator absenteeism did not feature in any of the accounts provided by educators. Educators mentioned that late coming and absenteeism is a common occurrence amongst learners who cite problems associated with lack of water at their homes.

4.3.2.2 Curriculum – achieving educational outcomes

The difficulties associated with achieving the educational outcomes are exacerbated by lack of access to water. The above discussion on partial loss of instruction time and absenteeism provide further motivation for this statement. Educators were vociferous in their accounts on the effectiveness of their teaching to achieve their outcomes. The senior management member said:

“...it affects the performance of the learners as well as the performance of the educators. The educators have to deal with the learners who were absent yesterday. They have given them the work that was done the previous day; they constantly have to review work...”.

An educator said:

“...it is too difficult to teach under the circumstances of not having water in the community schools...”.

Most responses from educators concurred with this sentiment. Another educator elaborated on this sentiment:

“It is hard to work at school without waterIt is a bit hard to work in this area.... it makes our work hard. You can’t expect the best results because the child has an empty stomach and is a thirsty child. The child comes to you and says Ma’am I am thirsty what can you do, nothing!

One educator spoke of the disruption to the teaching agenda especially by those on medication and pointed out that *“...some feel tired and dizzy from taking the tablets which disturb the whole situation in the class...”.*

The inability to conduct experiments with learners was also raised as a downside of not having water at school.

The school is a recipient of a DoE initiative called Quality Improvement, Development Support and Upliftment Programme (QIDS-UP). One of the primary focus areas of the programme is for primary schools to improve learning through provision of appropriate school infrastructure which include fences, toilets, electricity and water (DoE, 2008). The researcher had observed that a classroom occupied by the preschoolers had been fitted with carpets and a sink. One educator commented on this QIDS-UP initiative at their school saying:

“... it (QIDS-UP) gave us carpets and a sink to wash hands but we have not used it because there is no water. Department knows that we must wash our hands but they do not provide us with water. They do not go outside and see if things are functioning or is it just for decoration. The children do not know what the sink is for because they have not washed their hands. But they say they must wash their hands before they eat...”.

The focus area of this initiative which deals with infrastructure, particularly water, seems to have been ignored. An educator commented that teaching becomes difficult and pointed out that

“...we cannot teach life skills, – talk about healthy food, how to clean hands, wear clean clothes, - too difficult to teach it to them. They will ask you. How can we Ma’am since there is no water...?”.

Failure by educators to achieve their educational outcomes means that learners are disadvantaged in terms of that which is set down in the curriculum and that which is actually being achieved. This could result in a situation where the learners find difficulty in achieving the learning outcomes as set out in the curriculum. This has further impact which affects their education and employment opportunities. In an address to the World Bank and the Department of Trade and Industry, Azar Jammie an economist, commented on a recent African Union study on literacy and numeracy which found that South Africa was bottom of the list when compared to other African countries. He said “our education system is at the heart of unemployment... in fact you can see how close unemployment and qualifications are linked, as the degreed have a much lower level of unemployment” (SAPA, 2010). Bronfenbrenner, (as cited in Berk, 2000) saw each layer of the environment as having a powerful impact on children’s development. In this example we note that the education system in which learners are immersed are not producing the results it should. This places the country’s economic growth in jeopardy. The effects of the lack of support from the macrosystemic level to the microsystemic level (quality education) seem to have multidirectional effects. Persistent disruptions in the education of learners as a result of structural challenges in relation to water affect the learners’ ability to acquire a good quality education. This results in an increase in higher unemployment levels which the country can ill afford.

4.3.2.3 Health and hygiene promotion

Promoting good health is a key learning outcome. The difficulties associated with promoting good health stems from lack of water. Basic health promotion like washing hands is very difficult to institute at school level if learners do not have access to

water for drinking. All educators who commented on health promotion expressed frustration at not being able to achieve their goals in promoting good health.

The following were typical responses from educators:

“... we teach them after (using the)...toilet they must wash hands but there is no water, they can't wash their hands before they eat, there is no water. We are just talking, talking. We cannot put into practice what we are teaching. We talk about cleanliness, wash yourself, clean yourself but they can't. You are not supposed to penalise them or make something of it if they came with their dirty clothes we just say you are supposed to wash but they cannot do anything about it...”.

“...this school is getting to such an extent that the learners cannot keep clean, also affects their health, come to school without cleaning their bodies because there is a lacking of water. ...the water they have to wash their faces only. The head never gets water. They use the Vaseline to hide the dirt. They don't wash their bodies...”.

“...we want to start projects at school to show learners, like planting vegetables, planting gardens, grass, trees and so but there is no water...”.

An educator recounted painfully saying *“...some come smelling like the toilet, indicating that they did not have water to bath...”*. There were many responses that pointed out that the maintenance of hygiene was problematic for learners and for the school. *“...children cannot wash hands, clothes, we cannot clean classes, toilets, utensils as you could see, that is unhygienic...”* was yet another comment from an educator.

Educators are seen as role models and set an example for learners to emulate regarding washing hands after use of the toilet. An educator commented *“...it is important for the teachers to wash their hands after going to toilet so you set an example to learners..... We carry bottles from home; we also use that water to wash our hands after going to the toilet..”*.

This example is of great value provided that learners do not have other vital competing demands like drinking and sharing their water with other learners and educators. The researcher observed that during the interval no learner cleaned their hands using soap and water after relieving themselves either when they came from the surrounds of the pit latrines or those that went on the open veld. The researcher

also observed that there were as many as six learners who eat from the same bowl using their unwashed fingers.

An educator said that her learners tend to have problems with each other about the washing of hands. In some cases some learners complain that learners who use the pit latrines come back to class without washing their hands. If learners are coughing into their hands, there is no water to wash their hands. Others complain that they know that coughing can spread Tuberculosis. Whilst knowledge about diseases and taking precautions to prevent diseases is important, it must be noted that even though learners have the knowledge they are powerless when there are no resources to protect themselves from the potential spread of diseases.

4.3.2.4 Nutrition programme

In 1994 the state introduced the Primary School Nutrition Programme which has been renamed and is now known as National School Nutrition Programme. This programme was developed because the state acknowledged the presence of poverty within communities and that the learning capacities of learners could be negatively influenced by malnutrition and hunger. Improvement in health and nutritional status, school attendance and learning capacities are the overall purpose of the programme (Public Service Commission, 2008).

Participants were asked to highlight some of the consequences of lack of access to water on the school functioning with a specific focus area being the school nutrition programme. Educators and learners seemed to focus much attention on this aspect conveying the notion that this was one of their priority concerns and difficulties. One educator talked about the situation being made easier when the principal did own a car and said:

“...when the principal had a car she used to use her car to fetch water for the children and school. Now she has no car. So when there is no water we feed three or four days, we cannot feed everyday, the children do not know which day there is no food. We just say there is no water so we cannot eat today..”.

When asked about how learners react, an educator said “...*there are those from families that don't have food... you can see that they hate it when there is no food at school...*”. An educator commented on the situation at school without water, saying that it is a crisis. She said learners might “...*leave home without eating; maybe parents not working; there is nothing at home so for them it is easier for them if they are at school because they get food from school...*”. The difficulty of not having access to water at school was expressed in this statement by an educator “...*at times when there is no water we fail to cook, the nutrition programme fails because they (learners) cannot concentrate because they are hungry...*”.

Some participants indicated that from Monday 1st June to Wednesday 3rd June 2009 the school had no water. Thursday 4th June 2009 arrangements were made with a community member who managed to supply water to the school but it was supplied late thus delaying food preparation. An educator said “...*yesterday they ate very late because there was no water, the water came in late. They ate at 12:00... They say they are hungry. We used to eat from 9:30...*”. Normal meal times are between 9:30 and 10:00. The reason cited for lunch served between 9:30 and 10:00 is that many learners do not have anything to eat in the morning or that they are given a minimal amount at home with family members anticipating that children will get a meal at school. In order to accommodate those learners that do not have anything to eat in the morning the senior management arranged for the school meal to be served early.

Learners in their focus group discussions confirmed that the school nutrition programme was not consistent due to a lack of access to water. They sometimes arrive at school and are told that there is no lunch because of water problems. They said at home they do not “...*give (get) enough food in the morning because they know that we eat at school. So if it goes up to 11.00/1200 then it becomes difficult for the learners. At times there is no food at home so the learners depend on this meal at 10.00 if it comes at 12 then it is difficult. Some of them come to school without eating in the morning...*”. Nineteen out of the twenty learners who were part of the study indicated that they do not carry a lunch since the expectation is that they will

get a meal at school. None of them indicated having access to spending monies to buy something else in the event that there was no meal at school. An educator said *“...there are those that carry some food to school. Sandwiches and juice, but not all, most don’t bring. Sometimes those that bring share sometimes they do not share...”*.

Some learners have an alternative even if it is junk food (sweets and chips) when there are no meals at school whilst others don’t. An educator said *“...if no food (at school) some children buy some junk food, not all of them, some are very poor. It is difficult even to get to eat at home. So difficult to get fifty cents to buy junk food...”*.

Learners expressed dismay about not getting meals at school. They said that *“...things become more difficult because sometimes they do not cook at school. It happens many times. It is so bad...”*. Alternatives have not been found by the school or the parent community when this type of situation arises. Learners complain that on the days that there is no food, they *“...feel hungry, we don’t have energy, feel sleepy, not easy to write and listen to the teacher, don’t listen carefully, only one brings lunch to school...”*.

The educator said that she often gave learners her food or she goes to the office and complains to the principal that the learner is crying. In those instances the principal buys bread and shares it amongst learners who are hungry.

Another educator said:

“...they give us a problem after 12:00 they fail to pay attention. They want to go to the toilet often they go out for air because he is feeling hungry. They play, they are distracted. Not pay attention. They get tired, sleepy; they just want to get out...”. When the educator referred this to the principal the decision was sometimes made to send the child home instead of providing sustenance.

The educators mentioned to the researcher that learners get weak, lose concentration, become angry and lose interest and do not obey instruction because they do not have food or water. This is supported by learners who expressed the

view that although they are in close proximity to the dam they do not have access to water. A learner said that they are:

“...not happy about being close to the dam and school does not have water. Feels bad because when I am in school and there is no water. Feel bad, there are fruit that come to school but these are given out without washing. Feel bad because there are some children who don't get food at home and then there is no food at school on some days..”.

An educator commented on the impact of the lack of access to water and added a comment on the weather conditions and food preparation saying they

“...don't cook when there is no water. Kitchen area (is) not conducive for cooking. Aunty is struggling. When it is raining there is no cooking. When it is windy we find stones in the food...”.

Further difficulties are noted with the nutrition programme. Learners are asked to bring their own utensils for meals in order to reduce the burden of washing these utensils using the school's limited water resources. The senior management member said:

“...we decided to stop using the utensils supplied by the DoE because we do not have water to wash. We asked learners to bring their own utensils. They bring their bowls and the problem now is if they use the bowls today they come back with it not washed...”.

The reason given by learners for not washing the bowls at home is that they do not have water at home. During the mealtimes learners queued with their containers and the researcher had an opportunity to observe their utensils. Some had fairly clean containers whilst with many others it appeared that the containers had not been washed, looking grimy on the edges. Some used bowls with lids while others used plates and some had disposable margarine containers. An educator commented that

“...sometimes this mother (cook) dishes the on same plates which are dirty. Children are using the same plates without washing. Use same dish day after day due to not having water to wash...”.

The practice of sharing plates was not approved of by an educator. She said that

“...at home everyone have own plates after using they wash the dishes. Each washes their own. For sharing I don't like it. Diseases can spread. Not healthy. We always talk about being healthy...”.

Another educator indicated that at times when the school is short of water they approach the neighbours for water. She said:

“...we send the children with a bottle and they give us water. That is why we cannot provide you with some juice just because we don’t have water. The parents don’t mind giving us even if we do not have water to cook they give us 20 litres to finish our cooking, sometimes they don’t have water. We cook samp once a week but because of lack of water we cancelled this food (type). We cook rice and soya soup with dried beans but it is rare to have samp. They (learners) like the rice...”.

All educators acknowledged feeling “bad” about the learners not getting a meal at school and this statement by an educator sums up what most had expressed, *“...I feel sad; it’s painful to see a child very, very hungry. You imagine if you are hungry how you would feel. What about the child...”.*

The above accounts point to gross difficulties with food security at the household and school level. The mesosystem encompasses the linkages and processes between microsystems such as the home, school and neighbourhood which foster development (Berk, 2000). The findings note that the school is placed in a dependent position that necessitates interaction across many settings to secure access to water. One setting that is significant is the interaction between school and the home. Learners were asked what parents had to say about them not having a meal at school. They responded by saying that they were told to *“...go to work because there is no food at home...”*. However this does not apply to all families as some told the learners to take food to school the next day.

Whilst the DoE is trying hard to stem the tide of school drop-outs and to sustain learners who are already at school, this scenario clearly acts as a push factor that leaves families with little option but to encourage their children to leave school and fend for themselves. This situation clearly is not fostering the kind of development that we envisage for children.

Mgijima (as cited in Bonti-Ankomah 2001) found that vulnerability in terms of food security affects 39 % of the South African population. Bonti-Ankomah (2001) stated that chronic malnutrition is the cause of stunted growth in children aged 1 to 9 years characterised by low weight for their age and deficiencies in micronutrients. Negative consequences abound for children's development. African populations and rural households experience the highest food insecurity. Provinces with evidence of high stunting rates are also provinces that have a large rural population. KwaZulu-Natal has a stunting rate of 18% compared with Northern Cape and Free State which have 31% and 30% respectively. Bonti- Ankomah (2001) quotes the National Food Survey Consumption Survey Group as stating that malnutrition may lead to conditions such as Kwashiorkor and Marasmus and micro-nutrient deficiencies like blindness and cretinism. The school nutrition programme is by no means meeting its intended aim at this school.

4.3.2.5 Sanitation

The WHO (2009) cites the following problems contributing to the large number of deaths due to diarrhoeal diseases each year which are lack of a sustainable of water supply and sanitation services, lack of priority given to the sector, lack of financial resources, poor hygiene behaviours, and inadequate sanitation in public places including hospitals, health centres and schools.

Sanitation was raised as an important concern by the participants as a result of not having water at school. The condition of the sanitation facility was described by female learners as being unclean and having faeces and urine of the floor. Male learners said:

"...toilets are dirty, has bacteria, no water to clean the toilets. Young learners "plough down" (defecate on the floor) there are flies, no flushing toilets. Lots of flies. We go on the open field..."

An educator also commented on the condition of the toilets and the inconvenience to learners saying *"... although the toilets are dirty and old the learners still go there,*

sometimes they go in and around the toilet and the toilet seats are messed with their faeces...".

The researcher had visited the toilets and her observation confirms this assertion by the learners and educators. The condition of the toilets was appalling; the sight of the building and the odour was very unpleasant. The researcher had observed on several occasions that at the start of the lunch break many of the older male learners went to the far end of the property to relieve themselves. Younger learners did not relieve themselves around the immediate vicinity of the toilet area. They preferred to use the area around a tree at the entrance of the school. None of these learners were observed to have washed their hands. They proceeded directly to follow the queue to collect their food.

The observation of the researcher and the accounts of the learners correlated *"...some (learners) go to the toilet and then go to the kitchen to eat without washing hands..."*. In addition the learners pointed out that the result of not washing their hands is that they *"...get stomach cramps..."*.

A senior management member was asked about the condition of the pit latrines. She acknowledged that they were unhygienic. She said:

"...they go outside and around the toilets. Now what I am afraid of is that we used to buy a chemical that we use to put in the toilets so that everything will turn into watery fluid and then it is absorbed and it leaves the toilets not to be full but now since we do not have water we can no longer practice that. The toilets will get full and then it will be a disaster. This chemical is used with water. Since there is no water we last did that in 2007. The pit latrines are 6 metres deep..."

She continued to say that the young learners in grade R and grade 1 are always afraid of falling into the pit latrine, *"...we told them not to go the toilets because we are afraid that they might fall in, they go outside..."*. When questioned about the impact of this practice she said:

"...It is unhygienic; it might cause diseases like diarrhoea and cholera. So, you can see that we cannot draw water from the dam. The community around here do not have toilets so they go around outside or else what happens the community comes into the school after school (hours) and use the school

toilets. We cannot use the water (from the dam) without purifying. Since 1994 there is no toilets for the local people, they don't have toilets so they go outside. When it is raining it (human excrement) goes down into the dam. Difficult to draw water from dam and use for consumption...".

An educator talked about her personal attempt to clean the toilets but failed due to lack of detergents and water. She said learners "... go around the toilets because inside you cannot enter. I tried once to clean them but I failed, you need a lot of water. There are no detergents. School must provide the detergents but they fail to do that...". Another educator highlighted the preference of learners to relieve themselves outside of the pit latrines saying "...you don't want to enter the toilets they (learners) say it is cleaner outside...". Her concern was about flies going from the toilet to the kitchen.

A state commissioned study conducted by UNICEF during September 2007 to December 2008 found that a large proportion (61.4%) of South African public schools had no arrangement for sewerage disposal (The Presidency, 2009:96). At this school where there is no arrangement for sewerage disposal, the burden of disease is exacerbated.

One educator commented on the toilets for educators "...it is alright the teachers toiletbut not do everything...". The educator was conveying the notion that the educators use the toilets just for urinating. When female learners have an emergency during a menstrual cycle there were many accounts from learners and educators that indicate that the educator's toilets are used rather than those of the learners. These toilets seem to be in a better condition. The researcher had visited the toilets of the learners but not those of the educators thus no comment on the observation can be offered.

At a 2009 meeting of ministers during the "Africa Water Week" held in Johannesburg, UNICEF Chief of Water, Sanitation and Hygiene, Clarissa Brocklehurst said "...we have many countries where the vast majority of the population is still practicing open defecation". She further added that "in Sub

Saharan Africa, in particular, there is a crisis in sanitation and, of course, we see the impact of that – we see the poor health of the communities, we see children dying of diarrhoeal diseases so this is something that requires urgent attention” (UNICEF, 2009).

In order to reduce the burden of disease caused by these risk factors the WHO (2009) recommends providing access to sufficient quantities of safe water, the provision of facilities for a sanitary disposal of excreta, and introducing sound hygiene behaviours which are of dire importance to reduce burden of disease.

4.3.2.6 Menstruation

The researcher anticipated that female learners would be negatively affected by lack of water at school during their menstrual cycle. One educator commented on their attendance saying that they do attend school “..., *those that are menstruating I told them it must not be an excuse, they cannot tell me they can’t come to school. They go to the toilet what can they do. They are getting used to it...*”. The researcher also anticipated that the attendance of female learners who were menstruating will be poor given the poor conditions of the pit latrines. In the focus group, female learners related their experiences saying that all learners come to school when they are menstruating. Seven out of ten learners have started menstruating. They carry their own pads and change in the toilets. They throw the soiled pads in the toilet (pit latrine). They wash their hands and come back to class but added that they do not wash their hands every time.

An educator commented on the situation relating to female learners menstruating saying:

“...if it starts at school it is a problem. Some manage going to the toilet but the only problem is not washing hands and I feel bad because when I menstruate I go to the toilet and when I change my pad my hands get dirty. I bring one litre of water which is enough for me and I share with the learners...”.

An educator recounted a situation when a female learner started menstruating for the first time which happened to be in class. She said:

“...One day I had problem, it was part of my experience. Someone made the desk (school has the desk and the seat together which is referred to as a desk) red (messed with blood from a menstruating learner). So I asked all the children except the girl who was menstruating and her friend to go out and pick papers. So you and the girl must clean the desk and the males must not know what is happening. I sent the one learner to the home (neighbour) to fetch some five litres water and then clean the desk and mess and take the girl to the toilet and wash her tunic. I took a spare pad and gave the learner and sent her home...”.

The inconvenience caused to the conducting of the lesson is unfortunate but it is a minor inconvenience as compared to the level of sensitivity with which the educator handled the situation. This account shows the dire conditions under which the school operates that even five litres of water for an emergency was not available at the school. The neighbour had to be approached for water in an emergency.

It is encouraging to note that all learners attend school during their menstruation cycle. This finding is contrary to the finding of a survey by Water Aid in 2009 on reasons for girl's absenteeism. Key reasons for girls being absent from school while menstruating related to lack of privacy, unavailability of sanitary disposal facilities and water shortages. According to UNICEF poor sanitation is linked to gender insensitivity. Most schools continue to neglect the special needs of adolescent girls (IRIN, 2010). Although girls in this study come to school during menstruation the sanitation facility is not gender sensitive.

4.3.2.7 Illnesses and diseases

Illness and diseases associated with lack of water is complex and interrelated. This school is faced with situations where learners who are ill either have to take their medication before coming to school or take it at school using their own water. A few educators mentioned that there are learners on medication. A senior management member teaching grade 7 learners, mentioned that she was aware of ten learners on medication and that these learners carried their own water. One learner with cardiac

complications carries her own water bottle and leaves it in the principal's office; she takes it when she needs it.

Another educator said she had four learners on medication. When questioned on the type of medication she said that she knew of two learners who are taking treatment, one for Tuberculosis and the other on Antiretroviral treatment. Yet another is believed to be on epilepsy treatment. She added that the parents/caregivers understand the water situation at school and the learners take the medication at home. However she added that some of the parents/caregivers do not want to disclose to the schools that their learners are on medication. One educator said *"...many children with HIV, maybe more than fifteen children-other parents tell us children are on HIV pills..."*. Parents have been asked by school management to change the times for administering treatment. Medication has to be taken in the morning before learners come to school as the school does not have water. Young learners who are on medication have to manage their medication and the side effects, deal with their emotions, attend school and be expected to perform optimally. An educator provided an account of how challenging it is to teach a learner who is ill with HIV. She said *"...the child is too sensitive. I cannot teach about HIV/AIDS in class, the child cries. She knows that she got it from her mother. She takes medication at home everyday, 10 years old..."*.

A further disconcerting finding is that some learners at this school are on Antiretroviral Treatment. For learners who have the HIV infection, exposure to conditions that create further risk of diarrhoeal diseases can be fatal. Nel (2010:S17) draws the link between HIV, intestinal disease and malnutrition stating that "diarrhoea and malabsorption are important complications of HIV infection that contribute to the high morbidity and mortality. Episodes of diarrhoea are often complicated by severe malabsorption".

Educators pointed out that learners suffer many health problems such as rashes on their heads, diarrhoea, scabies, smallpox, chicken pox and sores as well as *“patchy hair, (Umbandama) about three or four has this...”* due to lack of water.

Another educator said that currently she has *“...one child sick with lots of bubbles (pimples)...”*. Further to this an educator pointed out that some learners have serious wounds all over the body because of failure to wash their bodies.

Preventative measures against diseases are minimal without access to water making learners susceptible to diseases. Male learners said they do not wash their hands after going to the toilet. Female learners said they do wash their hands before eating and after going to the toilet but they added, not everyday. They said that if they did not wash their hands and they eat with them, they get stomach pains. Nine female learners in the focus group said they suffer from stomach ache and have had diarrhoea but this does not happen every day. An educator said that sometimes the learners do get diarrhoea through use of unclean water. They miss school when they have diarrhoea. She said at times when learners get sick at school, they are sent home. Most participants raised diarrhoea as a common consequence of lack of water and unhygienic conditions. An educator spoke generally of her observation of learners in grades two and three saying that at least 90% of the learners in her class are sick. She said some learners look confused when given a piece of work, others have hearing difficulties and some have poor eyesight. Those who are ill do not concentrate, and some learners urinate in class. She also mentioned that she believed that five learners were mentally challenged.

It can be assumed that learners in the lower grades are faced with health challenges and will not benefit from the education system unless their special needs are considered.

The SGB member pointed out that there are lots of diseases. She said *“...they can get cholera, tuberculosis and some have rashes on the bodies...”*. When asked about her observation about the weight of learners, she said:

“...some are smaller, others are very small, not supposed to be in grade 3 should be in grade 2. Small built could also be because of the poverty in the area. Many parents are not working. They survive with grants from the government...”. This account confirms for the researcher that the lack of access to water compounds the problem of diseases, poverty poor health and other related problems. Vorster and Kruger (2007:322) maintain that the link between poverty, undernutrition and underdevelopment is a “vicious” and “intergenerational” circle. They assert that the circle is “vicious” because “undernutrition is both a cause and consequence of poverty. Undernourished individuals often “lack the capacity to benefit from education, to be economically productive and to create a set of circumstances that will prevent undernutrition and poverty in their offspring thus the ‘intergenerational’ component”.

Wittenberg (2008:50) in his article of gastroenteritis in young children concluded that:

“Persistent diarrhoea due to intestinal mucosal damage is an important cause of nutritional deterioration, morbidity and mortality. Therefore, it is usual to recommend additional meals daily for about two weeks after recovery from the diarrhoea episode to make up for the period of weight loss during the acute illness”.

This recommendation put forth, becomes fraught with difficulties to implement in the face of the adverse challenges. For many learners food security in the home is problematic as some educators have indicated. Additional meals are not likely to materialise for learners whose home situation is vulnerable to food insecurity. School meals too are inconsistent thus making recovery from weight loss difficult for many learners. This is especially disconcerting when there is knowledge that many learners are coming to school just so that they could have a meal since the home situation for many are food insecure. For learners in this schooling community with poor access to water, it seems that conditions in the home and the school cannot support and cater for the specific needs of learners who are ill. Bronfenbrenner would refer to this as a microsystem that has become dysfunctional (Berk, 2000). The prognosis is dire for learners who are ill and on medication without adequate

nutritional support thus they are at greater risk of nutritional deterioration, morbidity and mortality.

4.4 Gender

It is widely acknowledged that gender is a social construct used to refer to the social and cultural differences between male and female. Socialisation in terms of what it means to be male or female from a social perspective, is said to occur from childhood via the parents, society and schools. In the focus group discussion with female learners, it was revealed that only one of the ten female learners had access to tapped water at home and others depended on fetching water from the dam. In terms of the transportation of the water, one learner said that her father fetches water from another town by car while another learner mentioned that she uses a donkey to fetch water on some occasions; otherwise she carries the water container on her head. Eight female learners fetched water almost daily and carried between twenty and twenty five litres of water on their heads. All fetched water after school except for one learner who went to fetch water in the morning. When asked about how they felt when they carried the water they said that they, “...*feel tired, sweating, and feel pain in the backbone...*”.

Nine male learners also indicated that they fetch water from the dam and the dangers they face on a daily basis are from crocodiles, hippopotamus and snakes. The senior management member attested to these dangers stating that a young learner from her school had been attacked by a hippopotamus in 2008. The female learners also expressed fear of being raped whilst fetching water from the dam. Their fears were confirmed when an educator commented on the risk of learners being raped by fishermen. The educator mentioned that:

“...other fishermen rape the children; there is a high level of rape. Some are afraid to tell us. But we as teachers, we can observe..... maybe they think these children are too small. They will be afraid to talk the language of sexual abuse...”.

Whilst learners of both genders collect water for household usage, it would appear from the responses of learners that the role of fetching water at school is confined to

adolescent female learners. Male learners were asked where the school gets water from and their response was *“...from the rain, if it is raining, otherwise we fetch water from the dam, the car brings it in, or the girls go to fetch water for the school...”*.

Female learners said that *“...to clean the classrooms we have to go to the dam walking to fetch water, many girls go to fetch water....”*. When probed further about the role of the male learners in fetching water, the female learners pointed out that *“... males don’t want to bring water...”*.

The male learners indicated their preference to clean the windows and desks and said girls clean the floors. Girls use branches of trees, to clean the class and go to the small dam to fetch water in ten litre buckets which they carry on their heads. When the males were questioned about how they felt about the females fetching the water, they said *“...we feel bad because their heads are not strong enough. Not happy because they are not strong...”*. However they did not volunteer to fetch water even though they felt badly about the females doing this. Male learners saw the task of fetching water for school as that for females even though they felt that their female peers were weak and frail. This gendered division of labour and the inferior position of women in terms of their physical strength seem to have its roots at a tender age in the male psyche. A UNICEF (2006:6) report on water and sanitation confirms the position of women and females having to bear the greater consequences of “poor water, sanitation and hygiene as they are usually the ones to fetch the water”. The report also points out that females’ school attendance is affected the most by inadequate water and sanitation facilities at school and by the time spent travelling great distances to fetch drinking water.

The hardships facing women and children are well documented and reiterated by this account. “Poor women and children are particularly affected by lack of access to safe water supply because they have to fetch and carry water from remote places, leading to exposure to schistosomiasis (Bilharzia), malaria” and other waterborne diseases (Water and Sanitation Sector, 24). The expectations and practice of young female learners fetching water could put them at risk of contracting any of the

waterborne diseases which could then impact negatively on them acquiring an education.

Section C

4.6 Coping strategies

The inability of the school management to secure access to water through interactions with authorities like the DoH, DoE and the municipality has resulted in the school resorting to measures to deal with the situation of poor access to water. Educators and learners now have the added responsibility of securing access to clean drinking water. Sometimes their attempts have been successful whilst at other times this can lead to greater harmful circumstances facing learners.

4.6.1 Educators

Responses from educators about ways in which they cope with poor access to water is that they do not have an option but have to find ways to deal with it. Therefore educators have no choice but to bring their own water to school.

Educators have accepted that there is a problem of accessing water at school. As one educator pointed out *“...educators cope they understand the problem of water.... Some educators use their own small bottles to wash their hands if they go to the toilet...”*.

The researcher found that other reasons for carrying water to school is ill health. An educator suffering from ill health said:

“... when you want to take some pills you must bring some water with you otherwise you won't drink your pills. I bring water for myself, two litres everyday. Use it for drinking; washing hands before I eat, taking some tablets because I am not good, I am not well. I am not healthy enough. So I carry water for myself...”.

Although most educators said they carried water to school, there were some who acknowledged that it was not a daily occurrence. An educator said:

“We provide ourselves with water but not everyday and we are familiar with the situation now that our area is just like this. It is hard when you are a new

educator, it is too hard. I know very well that there is no water in the school and in the area, we just have to accept the situation...”

This irregular practice of educators carrying water daily was once again highlighted in the following response:

“...I don’t know whether they afraid to carry for themselves. So I share with children and teachers too. Not all carry water everyday, only one. The two litres are not sufficient, maybe I just give them with the cup because I am afraid to give them all my water then I will suffer. But I prepare to come with water everyday. I cannot give them all because I am supposed to drink water. Even the children, we told them to carry water. Some, they carry and some don’t...”

Another way of coping with difficulties around water is that the school depended on the neighbours bordering the school. Learners were sometimes sent by the school with a bottle to the neighbours to ask for water and they obliged the school. Another way of coping is to ask parents for water for cooking. Parents did oblige on certain occasions if they did have water.

Often learners are taken on school excursions and they have to be neatly attired therefore the school copes in these instances by washing their clothes as pointed out by a management member in the following:

“When we have to go outside for excursions, we the teachers collect their skirts and shirts socks to wash them so that we have cleaner kids out there otherwise you will see some wonders, you wash and iron for them and provide them with cleaner water so that they can drink along the way”.

Poor access to water is very difficult to cope with and some educators were vociferous in their accounts as they are definitely not coping with the situation. An educator spoke of the inability of educators to cope with the situation of poor access to water saying:

“We do not cope at all. We are failing to teach. With a school, community without water we cannot cope. Because this problem of no water will lead to us experiencing diseases some of the problems facing children... educators are afraid of getting diarrhoea. It is too difficult to teach under these conditions in the community that experiences lack of water, cannot teach. School classes must be clean, cannot teach learners in a dirty place...”

Tay (Well Country Note 2.1: undated) emphasises that the physical and human environment of the school influences children's health in many ways. An unsanitary school environment is a major contributory factor to diarrhoeal diseases.

In order to cope with hungry learners, educators often shared their food with desperately hungry learners at school. An educator pointed out that

"...sometimes I buy two loaves of bread. Cut into tiny slices because you can see in their eyes they are very hungry. Sometimes we take our own lunch and give it to the child who is crying. This does not happen every day..."

It is laudable that educators are taking the initiative to assist hungry learners as pointed out in the following:

"The problem is that there is too many of them. Only give those that have a serious issue. When a learner cries then we know it is serious. If you talk to the learners they will tell you that they are hungry and that they did not eat in the morning and now I have pains in my stomach. Sometime the heads of department gives the learners their own lunch..."

Management at this school have agreed that learners who do not have access to water in the home can attend school in casual clothes. Other learners who have access to water in the home attend school in clean uniforms.

Learners were questioned about poor access to water in school and how educators coped with this. They explained that they shared their water with educators. Learners, who live in Jozini where there is piped water, travel to school by car and bring water to school, share with educators. These learners were approached by educators for water as seen in the following quote *"...some come from Jozini by car where they have water, they bring (water) but not the learners from around here, we as teachers we ask from the learners when there is no water and they give us..."*

Although many educators commented that they were not coping well with the situation they felt that seeing that it is their job and responsibility they will have to do whatever it takes to manage the situation.

However despondency has set in because educators are faced with their white clothes becoming discoloured because of the dust, their books being dusty, classrooms and toilets unclean, learners coming to school unwashed and ill and learners not having access to a meal at school on a daily basis.

These findings are substantiated by Hall (as cited in Theron *et al.*, 2003:78) who asserts that one of the consequences of numerous “unrelenting changes is that the educators’ tasks have intensified”. Educators are now required to have a “concomitantly advanced repertoire of skills”. These skills often include caring for learners, more especially when the social reality in which education occurs, is impacted by the HIV and AIDS pandemic. Educators worldwide have reported feeling careworn and dispirited.

4.6.2 Learners

Educators were asked how learners coped with not having access to water at school. One educator responded by saying “... they don’t cope. Don’t come to school when there is no water, we give them water from our two litres. They also share amongst themselves...”. Learners in their desperate attempts to get access to water sometimes resort to unsavoury habits as indicated by this educator:

“The others who used to come with bottles full of water they used to complain that the other children steal their water. Ma’am they stole my water, you cannot punish the child, they were thirsty”.

One educator who responded to a question regarding where learners get water from, if they did not bring it to school said:

“Nowhere, except if I have I give him or her some. If sometimes the learner shows tiredness they drink this water. I say to them there is nothing else I can do for you; I only have this water for you”.

She added that learners that do bring water in very small bottles share with other learners that don’t have. The carrying of water and sharing of water by both educators and learners is a fairly common practice and is a coping strategy to deal with poor access to water. Another educator felt that “...some are lazy to carry their

water...". She advised them to carry their own water and not to share. This goes against the principle of *Ubuntu* that fosters, according to Louw (as cited in Forster, 2010) the interdependence of mankind and the compassion for others. This educator may be disadvantaging the learner who is seen to be lazy but may genuinely have a problem in bringing water to school.

With regard the school nutrition programme an educator said that the meal types had to be varied since samp requires a long time and a lot of water to cook - the school cancelled the order for samp. Learners are given rice instead which requires lesser cooking time and less water.

Male learners were asked about how their friends coped without water. Some responses included *"...we share from the girls; just don't drink; I am asking water from others; some bring one or two litre plastic bottles (of water) and the bottles are not always clean..."*.

Some male learners coped without water by saying *"...we drink at home and don't drink during school time..."*.

Female learners are more sympathetic and coped by saying that *"...they share; bring own water...try to find water from others. One learner brings lunch and shares with her friend... Some learners eat and give dishes to others without washing... some others don't wash their dishes..."*.

As noted in section 4.3.2.4 the school had requested that learners bring their own utensils from home as there is little access to water at school for washing. Some learners did bring their own plates while others shared their utensils with friends. The lack of water at home has meant that some learners come to school with the same unwashed utensils the following day. This can lead to risk of many diseases.

An assessment of the goodness of fit between learners, educators and the school environment is seen to be far from functional. In addition, the goodness of fit between the school and its interaction with the authorities, despite the legislation and policies in place, show a state of disrepair. The impact of the lack of goodness of fit across all systemic levels is that social justice is not being achieved. This is widening the gap between the rich and poor, urban and rural contexts, male and female, and children and adults.

Section D

4.7 Recommendations from participants

Learners and educators were asked for recommendations on ways to improve access to water at school. Their recommendations relate predominantly to how structural reorganisation is necessary to improve access to water at school and at community level. Whilst the educator component and the SGB member recommended intervention at the exosystemic level, learners raised recommendations for intervention at both the exosystemic and the microsystemic levels. Recommendations were also made about the role that the researcher can play in accessing water for the school. The following themes emerged in the proposed recommendations:

- The provision of infrastructure by government authorities to schools is a priority. Specific mention was made of a budget to be set aside by government to cater for school infrastructure. A senior management member said *“DOE they must put aside money in the budget for providing infrastructure to the schools”*. Whilst the schools were identified as important for development, equally important was the development of infrastructure at the community level.
- Local government authorities could be approached to supply water to school using water tankers. Councillors were regarded as influential to development and could use their influence to motivate for the pumping of purified water from the Jozini dam. An educator called for speedy intervention from the

state, to address infrastructure limitation at schools in the rural areas saying *“we need water, wish government will be quicker”*.

- A complaint could be lodged with the DoE regarding lack of water service provision by the municipality. Urgent attention is to be paid by the DoE to rural schools and their various challenges. Educators and female learners raised water and electricity as infrastructural issues to be addressed. Monitoring by the DoE of the plight of schools was also recommended.
- Presidential intervention in infrastructure provision to schools was articulated. A copy of the research report could be forwarded to the Government since Government is concerned with the rights of children. An educator recommended that the school *“write a letter to government to remind (them) that we do not have water.... If they do not respond to the letter then it means I must go face to face to Mr Zuma to tell him we need water”*. Female learners also called on the State President saying that the school *“must”* have water. Besides water they raised other needs which the president should consider like brooms, since they use branches to sweep their school, new classrooms and toilets and a new chalkboard as their chalkboard is broken and lies on the floor against the wall. They expressed their concern about the poor infrastructure for water which impacted on learners who are on medication. The SGB member recommended that the President consult with other departments like DWAF and Agriculture to conduct a survey relating to schools with poor water access.
- In the focus group with the SGB member and the Educator the recommendation put forth was for the researcher to make contact with relevant authorities to alert them of the plight of the school. Another educator recommended that the researcher *“... write a letter to everyone you think of who can get water to the school. Any action you think you can afford to do accordingly for water”*.
- Male learners requested that the school write a letter to the DoE to *“inform them that there is no water, they must bring water in”*. They also

recommended that the school “*talk*” with the municipality whom they felt “*must help the school*”.

4.8 Conclusion

It is clearly evident from the experiences of educators and learners at this school that access to water is major challenge on several fronts. All learners experience difficulties with accessing water at school and some face similar difficulties at home which exacerbates conditions that impact on their development. Educators too, are affected personally, as they are having to teach in unsanitary conditions, dealing with requests for water from learners which they cannot always satisfy, dealing with situations when the nutrition programme is dysfunctional thus affecting the routine of teaching and learning. Poor access to water at school has meant that water is being brought in from several sources including municipal infrastructure, rivers and dams and this results in varying degrees of risk to learners and educators. Hygiene, sanitation, personal functioning and the efficient functioning of the school are amongst several other aspects that are affected due to poor access to water. This chapter has highlighted the findings on the experiences of learners and educators in a school with poor access to water, what coping strategies they have implemented and their indigenous recommendations. The following chapter will provide a summary of the main findings and recommendations. Also, within the next chapter future research areas are suggested.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The findings of this study provide sufficient evidence that poor access to water at school raises a number of challenges that impact on the functioning of the school broadly. The conditions facing the schooling community are exacerbated by poor access to water in the community. This chapter draws together the main findings from which conclusions are derived and recommendations are thereby generated. Additionally, suggestions are put forth regarding areas for further research.

The aim of the study was to gain an in-depth understanding regarding the effects of poor access to water on learners and educators. The main objectives of the study were to document learners' and educators' experiences and coping strategies regarding access to water. The discussion in this chapter is informed by the aims, objectives and key questions as per Chapter One.

The research study was qualitative in nature and used a case study with multiple methods of data collection. The theoretical framework for the study was approached from an ecological systems theory and social justice perspective. The researcher personally undertook focus groups and in-depth interviews which were analysed. Twenty learners (ten males and ten females), two senior management members, one SGB member and seven educators from a primary school in rural KwaZulu-Natal participated voluntarily in the study. An observation schedule was used to document the researcher's observations of the context. A participatory rural appraisal tool, an activity clock, was used to capture the activities of young people in relation to their water related activities before, during and after school. Grade 7 learners as opposed to learners from lower grades were selected purposively taking into consideration their age, grade and specific life stage.

5.2 Summary of the main findings and major conclusions

This section provides the summary of the main findings and conclusions which are discussed using the different systemic levels, as discussed in Chapter One, which are microsystem, mesosystem, exosystem, chronosystem and macrosystem.

5.2.1 Microsystem

At the microsystemic level several findings emerged that provide insight into the activities and interaction patterns related to the school's access to water, school functioning, personal functioning and coping mechanisms. These will be discussed in this section.

5.2.1.1 School's access to water

The findings illuminate the complexities facing learners and educators at a school with poor access to water. At the microsystemic level the findings suggest that the immediate environment of learners and educators is fraught with difficulties in accessing water due to lack of infrastructure and unsustainable access to natural sources. The findings provide a broad spectrum of the possible ways in which the school has tried to gain access to water over the years. These methods included educators transporting large quantities of water using taxis and having to pay a fare for the container as well as for themselves, educators and learners bringing in their daily consumption of water which is irregular and is not the case with the majority, female learners fetching water from a nearby source during school hours, dependence on neighbours of the school, rainwater harvesting, use of the community tank which the community takes umbrage to, some learners who have access to water both good and poor quality water, bringing it in for cooking purposes and through organised transportation of water from Jozini for which the school has to pay using donor funding and through negotiations with authorities.

5.2.1.2 School functioning

Access to education without the vital component of quality is meaningless. The quality of the learning experience is dependent to a large extent on the nature of

school functioning. The findings have raised some critical aspects in relation to school functioning that include partial loss of instruction time, absenteeism, curriculum challenges, inconsistent nutrition programme, poor health and hygiene practices and poor sanitation.

Lack of stability is evident in the daily functioning of school where each day is faced with the drudgery of dealing with poor access to water for management, learners and educators. The situation of poor access to water, ingesting poor quality water and poor hygiene practices results in a negative impact which affects health, nutrition and subsequently education. Learners become ill and their attendance at school suffers. Some learners who become ill at school are sent home; this impacts negatively on their education. Partial attendance manifests itself when learners attend school for a few hours due to water related problems. The challenges for educators are great in that they have to manage the numerous complications associated with poor access to water.

Teaching curricula which promotes health and hygiene, with the aim of making an immediate and long term impact on the lives of young learners, proves impracticable without proper sanitation facilities and safe potable water for drinking. The long term goal of promoting good hygiene and subsequent good health in adulthood is too far fetched as learners do not have the resources to practice good hygiene habits from a young age. Barriers like access to water that loom in accessing meaningful education, have the potential to limit the exploration and exposure of the full potential of the education system. Inability of educators to conduct experiments or to engage in a skills transfer on how to plant vegetables is considered a missed opportunity.

A significant finding is that the school is not able to carry through with the state funded nutrition programme on a consistent basis due to challenges in accessing water. Furthermore, the conditions under which food preparation takes place is found wanting because of poor hygiene standards. The withdrawal by the school of the use of state funded utensils has meant that learners are sharing plates and containers

which are unwashed after each usage. Learners also share meals (eat with their fingers) out of one container so that fewer learners have the responsibility to wash the containers after use. A conclusive remark can be made about this situation that the nutrition programme under these conditions is a failed attempt to serve the needs of vulnerable children in a community that is amongst the poorest in KZN. There are learners who attend school but are ill, preoccupied with thirst and/or hunger and on ARVs and other medication and do not derive maximum benefit of the school day because they are sometimes sleepy and tired. The findings indicate irregular attendance and partial presence which impact on the educators who have to constantly review work and cannot advance with the curriculum at the pace they would like thus affecting education outcomes.

Several points can be raised about inadequate access and the methods used to secure access to water. In terms of educators, besides the regular expectations imposed by the nature of their work, their portfolios as educators at this school have been exponentially broadened. Not only do they have to carry water for their own consumption but also for school usage. They also have to respond to learners and their basic need for water and their basic need for food when the nutrition programme is dysfunctional. Additionally they have to respond to sick learners at school (learners who have diarrhoea, stomach ache and those on medication) and attend to the plight of orphaned learners amongst various contextual difficulties.

There is a dearth of literature that draws the connection between poor access to water and its negative impact on sanitation. Learners and educators have to deal with the unhealthy condition of the pit latrines, with many learners choosing to use the open field as opposed to the latrines. Educators have no choice but to use the unclean latrines. Besides the need for water to clean the latrines the funds to purchase chemicals required to dispose of faeces are not available. Poor hygiene after use of the latrine is just one of the numerous ways in which the spread of disease is imminent.

A major conclusion reached here is that reliance on learners, educators, donor funding and community for access to water and reliance on natural sources is no longer a feasible option for the school. The necessity for water infrastructure with tapped potable water or an alternative access to water is critical for the school's operations to be effective and efficient and for the health and wellbeing of the schooling population. In addition, water infrastructure at the community level is also vital in dissipating tension between the school and the community over scarce resources and for sustaining good health and wellbeing of its population.

5.2.1.3 Personal functioning

One of the widely acknowledged aims of education is to free the potential of children. A major finding that emerged is the manner in which children are personally affected as a result of the lack of water at school. Learners and educators highlighted that learners' personal functioning during school was negatively affected to an extent that included physiological, behavioural, emotional, and cognitive aspects.

In terms of their physiological functioning, thirst coupled with hunger impacted negatively on learners' ability to cope with the demands of school life. Most learners were unable to engage in play activities as well. Climatic conditions also exacted different demands for water. Stealing, quarrelling, refusal to follow instructions and damage to school property was some of the anti-social behaviour associated with poor access to water at school. Emotionally, learners were most affected when the school did not provide a meal at school. The cognitive functioning of learners is severely affected as they are unable to concentrate and listen carefully in class. A valid concern was raised by learners and educators about the lack of water at school and the long term effects on their health. These negative impacts point to a school environment that is toxic and not a conducive learning environment for the growth and development of learners and their education.

5.2.1.4 Coping mechanisms

The second objective in this study was to document the coping strategies employed by both learners and educators in response to challenges associated with access to water.

Several innovative attempts have been made in order to cope with the situation of poor access to water, some successful while others not, and some attracting further negative repercussions for the learners.

The findings concerning the coping mechanisms were inconsistent. Some educators acknowledged the difficulties associated with poor access to water and felt that they had to be resilient as it was their job to educate. The resilience factor is pertinent as a coping skill because this prevents many educators from becoming overwhelmed with the plethora of contextual demands placed on them in this teaching context. The findings however highlight generally the empathic nature of learners and educators who try to respond to the difficulties in the best way they know how. This empathic approach by educators is lauded but it is not a sufficient response to the challenges facing the education of their learners. The researcher found that the capacity of management and educators to advocate more vigorously on behalf of learners entrusted in their care for access to water was missing. The school is failing to draw the attention of the authorities regarding their observations of neglect of learners. Educators could easily be found in contempt of the mandatory reporting obligations as envisaged in Section 110 (1) of the Children's Act 38 of 2005.

Without clear information about the roles and responsibilities of the different government departments and the necessary advocacy skills, educators and learners are in a worse off position having to deal with the progressively worsening conditions that present since the inception of the school. The necessity of educators being equipped with advocacy skills brings into discussion the role of educators in contributing towards social justice. The findings of the study raised many questions relating to employees in state institutions, maintaining the status quo instead of championing causes that lead to more egalitarian society and a better outcome for all.

Generally findings also point to learners who are empathic and share what little resources they have with their peers including water (not necessarily safe drinking water) and utensils (not necessarily clean). This is clearly a way that learners help support each other cope with the situation. The anomaly with this situation is that diseases are being spread in a place which purports to promote health education.

Some educators mentioned that both educators and the learners were not coping well with the challenges associated with poor access to water. The prospects of a good quality education for these learners are very bleak. They are continually being exposed to challenging environments with poor sanitation, an inconsistent school nutrition programme and to unhygienic conditions to name but a few. There is an abundance of literature which has drawn attention to unhygienic conditions, poor sanitation and lack of water as variables in promoting diarrhoea. Chronic diarrhoea in childhood could lead to immediate repercussions like malnutrition in their formative years and consequently have a long term impact on their health as adults. Furthermore, some young learners are forced by conditions that prevail at school to urinate and defecate outside the pit latrines because these are unfit and unsafe for human use. This is an insult to children's dignity and self worth. Upholding the dignity of an individual is the cornerstone of our democracy. How can the state claim that they are upholding the dignity of people when these learners, at the institutional level, are facing such appalling conditions? The question which needs to be explored is whether the state can be challenged on a lack of co-operative governance and for missed targets it set for water provisioning in the Umkhanyakude District.

5.2.2 Mesosystem

As discussed in Chapter One, Bronfenbrenner (1994:40) regards the "linkages and processes" between home and school as the mesosystem. In this instance, linkages between home and school community point to a strained relationship with both sectors trying to meet their objectives in the best ways possible. For many of the male and female learners this relationship between home and school has become

somewhat acrimonious. The findings highlight tension between the home and the school in relation to requests made by the school for learners to bring water from home. Many parents/caregivers inform their children that the school must make arrangements to provide for its own water. They indicate that someone in the home has to pay for water when the water they get free from the municipality is finished thus a reluctance to provide learners with water for school. Families are trying to preserve what they have since the bulk water drops from the municipality to the community is irregular. This places undue pressure on the home to preserve the water for home use. The findings provide sufficient evidence that the home is no longer a resource from where the school can access water through their learners.

Water related difficulties in the home environment spill over into the education environment. Lack of water at the community level exacerbates the difficulties children face like washing their uniforms. Families do not cook meals due to lack of water in the home and learners are therefore hungry. Learners also have to fetch water during the school day for home use. Tension also exists between the community and the school over access to scarce resources. The community is not prepared to share its allocation of water from the municipality with the school. The school management on the other hand fails to understand this reasoning since the learners come from the same community. In addition, the school also tried to prevent the community accessing its water by closing off the tap to the rainwater harvesting tanks at school thus trying to preserve what little it has for school usage. The findings suggest consideration be given to a solution where both the community and the school have access to potable water in order to resolve the impasse.

5.2.3 Exosystem

Bronfenbrenner, (Berk, 2001) speaks of the exosystem as social settings that do not contain the children but have the potential to affect their experiences in the immediate settings (like the home and school). This section will concentrate on the schools negotiation with different state departments around access to water, the

school subsidy and a DoE support programme that have a bearing on the immediate environment of the schooling community.

5.2.3.1 Negotiations with municipality, DoE and DoH

The school management and educators have made several attempts to secure water through approaching the relevant authorities like the municipality, DoE, and DoH. Their attempts were futile in eliciting any meaningful response to their plight regarding poor access to water from the relevant authorities. The findings indicate that negotiations have been of an indecisive nature and there has been confusion over roles and responsibilities by the various departments. It can therefore be argued in this instance that negotiations with different authorities over the years to secure access to water has not materialised and this affects processes in the immediate setting (school and home) both directly and indirectly. The direct influence is obvious - the school continues to face unsustainable access to water. The indirect influence is that the school has to deal with mounting challenges associated with poor access to water on a daily basis like, diseases and illnesses, poor sanitation, inconsistent nutrition programme and poor hygiene practices.

5.2.3.2 School subsidy

Payment for the transport of water by the school management is through donor funding which has the potential to cease at some point. The school is a Section 20 school. The state subsidy is controlled by the state through a procurement process where the school makes requisitions for supplies. For this school an amount of R42000 of the subsidy was forfeited in March 2009 due to problems with the requisitioning process. Botched requisitioning procedures and the loss of much needed resources in this schooling community is inexcusable. This already poorly resourced schooling community lost the benefit of resources which it could ill afford. An additional factor is that when the school does not have funds to outlay for the transportation of water, the outcome is simple - the school does not have water which brings school operations to be rendered ineffective and to a virtual standstill. The management of day to day operations is impossible without access to funding.

Children in this community and the education sector of South Africa can ill afford this situation.

5.2.3.3 DoE support programme

DoE supported programme called Quality Improvement, Development Support and Upliftment Programme (QIDS-UP) aims to improve learning in primary schools through improvement in infrastructure, amongst others, water. The implementers of this programme must take into cognisance the impact of poor access to resources in schools, like water infrastructure. Installing a sink in a classroom without access to water has been questioned by an educator as to whether it was for decorative purposes. A proper assessment of the infrastructural resources at the school should be undertaken so that the DoE is made aware of the conditions that face the day to day operations at this school. These conditions and situations have the potential to overwhelm educators, frustrate their professional goals and contribute to them losing morale. A major conclusion here is that educators are expected to teach under severely compromised teaching contexts with the expectation of producing great outcomes. The detrimental impact of various aspects associated with poor access to water on school functioning, is a reflection of processes that go beyond the school boundaries, like the interaction with relevant state actors whose responsibility is education and infrastructure.

Even though the state prides itself with funding for access to basic education and programmes for improving access, a lack of co-operative governance in addressing infrastructural resources is blatant. The concomitant lack of support from within DoE and between the various government departments to supplement education has irreversible impacts on education outcomes. A major conclusion that emanates from these findings is that there is a severe lack of goodness of fit within and between the different socially organised systems and subsystems which contributes negatively to a situation where access to basic education is impacted upon by structural disadvantages. From a social justice perspective, a fundamental change is necessary in the manner in which government departments are currently functioning.

The empowerment of local settings to inform and monitor the delivery of state services is imperative for the improvement in the goodness of fit. In some instances empowerment through technical and financial capacity is also necessary for state departments to enable it to fulfil its role functions.

The findings of this study must prompt action from the Office of the Public Protector to investigate allegations of poor service delivery by the education department, DWAF, the local and district municipalities and possibly even provincial and national government for their roles in administrative aspects related to education and water provision. This investigative action and corrective measures implemented would be in line with achieving social justice.

5.2.4 Macrosystem

Bronfenbrenner (as cited in Berk, 2000:29) maintains that depending on the level of priority given to children's needs in the laws, values, customs and resources by the macrosystem, this will affect the "support children receive at the inner levels of the environment". Chapter Two encompassed a discussion of the various international and regional treaties that South Africa has committed to. One of which is the United Nations Convention on the Rights of the Child. According to Proudlock (2009) several indicators are used by the treaty monitoring bodies to establish progress that countries have made towards the realisation of their obligations to children's socio-economic rights. Water and sanitation are amongst many indicators used. Although commitments are made at an international level, the findings of this study offer little evidence that South Africa is making rapid progress towards meeting its obligations in terms of the Convention. Specific mention is made of the MDGs and South Africa's commitment to the goals concerning water and sanitation. Based on the findings of this research study, implementation of the capacity and resources to achieving the time bound MDGs are questionable.

5.2.5 Chronosystem

The natural sources of water available to the school in the study included rivers, a spring, a borehole and rainwater harvesting. These sources provided some relief when it was available and for brief periods. The safety of the water from these sources is questionable and poses a risk to the wellbeing of the schooling population. No water purification agents or techniques were used before ingestion of water from these sources. Bronfenbrenner (1994) in his understanding of human development incorporates a chronosystem to accommodate for processes of change or consistency over a period of time in relation to personal characteristics and the environment in which the person lives. The chronosystem is apt in this discussion in tracing worsening climatic conditions and its impact on personal and school functioning. Seasonal changes in access to water and the prolonged drought in the area of Umkhanyakude District makes access to water in this schooling community even more challenging. Access to water at school has progressively worsened over time exacerbated by changes in the climate with longer periods of hot and dry conditions. Seasonal changes in access to water affect teaching and learning differently. Educators have observed that the learners' demands for water are greater in the summer months than the winter months thus exerting greater demands on them and the school which they fail to meet ordinarily. Poor access to water at school level poses a threat to the functioning of the school and a heightened risk to the health and welfare of the learners and educators predisposing them to diseases and illnesses. The consequence is that the school offers gradually limiting opportunities which impact on the optimal development of learners. Over time learners too will be affected by the erratic nutrition programme and continual exposure to food insecurity in the home environment.

5.3 Recommendations

From the analysis of the findings several recommendations are offered. The DoE, district municipality, the DWAF, DoH, Human Rights Commission, Office of the Public Protector and other identified sectors could give immediate consideration to redefine the conditions that presents itself at schools that have poor access to water.

From an ecological systems perspective, as discussed in Chapter One, the child is viewed as developing within a complex system of relationships affected by multiple levels of the surrounding environment. It has become evident that in the immediate environment which is the microsystemic level (school), the functioning of the education system is dysfunctional as it is dependent on interaction and processes at the exosystemic level. Recommendations pertain to structural changes at the exosystemic level that must be effected in order to ensure that the challenges facing this schooling community and similar communities are ameliorated to achieve social justice. Given the limitations of the study, the findings are sufficiently robust for the relevant authorities to intervene in this area which is under their jurisdiction. This section will discuss recommendations pertaining to sustainable access to water, a child-centred approach to basic education, co-operative governance, Chapter 9 institutions, general health screenings by the DoH and climate change and children

5.3.1 Sustainable access to water as priority

From a social justice perspective the findings provide adequate evidence that the rights of children are being violated. Poor access to water is impacting on educational outcomes. Structural changes at the national level must be introduced to address the inequitable distribution of resources to rural schools. Structural changes could mean redefining what basic education means and implementing standardised norms and standards. Access to infrastructure like water and sanitation at schools, although implemented at the local government level, must be monitored by the provincial and national departments of education to ensure that the environment is enabled for teaching and learning to be effective. Lack of access to water and sanitation are structural barriers to education that must receive priority attention. Sustainable access to safe drinking water **MUST** become an immediate national priority. Infrastructural development concerning water and sanitation must be fast tracked in terms of service delivery and must be accompanied by relevant expertise, funding and backed by fervent political will. Piecemeal efforts will not suffice as this will not address schools suffering the same fate as the school in this study.

5.3.2 Child-centred approach to basic education

Basic education must be approached from a holistic and child-centred perspective. Full consideration should be given to unique vulnerabilities and capacities of children. Careful assessment should be conducted on other variables like poor access to water, sanitation, nutrition, health and so on which make it challenging to free the potential of children. Policies and programmes must reflect these. Meaningful access to basic education therefore cannot be analysed in isolation from other variables in the context within which education occurs.

5.3.3 Co-operative governance

It is widely acknowledged that the current government has inherited the immeasurable impact of the ravages of apartheid, deep social inequalities and disadvantages facing rural communities. In addition cognisance is taken of the decades of underinvestment in infrastructure in rural South Africa. The necessity of pooling resources and the specific obligations entrusted with different state departments like departments of water affairs, education, health, local and district authorities make it a fundamental need for co-operative governance. The efforts of the state can and is often supplemented by civil society organisations, businesses and the donor community. A multisectoral networking forum could contribute in the best interest of children and their development. The contribution could encompass short and long term responses to mitigate the impact of the crisis facing rural education and communities without sustained access to safe drinking water.

5.3.4 Chapter 9 institutions

For social justice to prevail, violation of rights associated with structural disadvantages has to be removed. The fundamental right of children to access education and to access clean water at school must be facilitated by the state with a sharpened sense of urgency. The progressive realisation of the right to water within available means does not mean that the state has an unlimited time period for granting these rights. Perhaps it might mean adopting an acute focus on a human rights based approach to state fiscal spending (UNICEF, 2007). Consideration must

be given to a realignment of state spending to address priority needs that create the best leverage against other ills like health issues, negative social impacts and *inter alia*, civil society uprising against poor state service delivery. It is essential that government programmes, into which billions of rand are invested towards development, have a two pronged focus, i.e. emphasis on funding outlaid as well as on consistent monitoring and evaluation of outcomes. These outcomes must materialise in the improvement in the lives of human rights beneficiaries. Social justice principles assert human rights based approach to programme planning, implementation and evaluation.

In terms of Section 184(1)(c) of the constitution, a function is placed on the Human Rights Commission to “monitor and assess the observance of human rights in the republic”. Furthermore, in terms of Subsection (2)(a) and (b) the commission has the power vested in it to investigate and report on the observance of human rights and to take steps to secure appropriate redress where there are human rights violations (Act 108 of 1996). A move towards a more egalitarian society is proposed. The realisation of the socio-economic right to water can be advocated for on various levels i.e. through civil society organisations and through the state institutions. The South African Human Rights Commission could investigate whether the socio-economic right to water has adequately been considered by the state for the short, medium and long term needs of children in the Umkhanyakude district and more especially the schooling community. Additionally, the focus of the investigation should also be whether the right to basic education is infringed by poor access to water at school.

Concerted efforts should be made towards an aggressive strategy that favours development efforts by all roleplayers. This will ensure speedy and quality delivery of services to rural communities. The Office of the Public Protector becomes critical when effective delivery by state services institutions is brought into question. State employees have an obligation to civil society to ensure that the programmes and

policies of government are implemented in the most effective and efficient manner and are not to be found wanting in the execution of their duties.

5.3.5 General health screenings- DoH

As a result of the lack of access to safe drinking water, proper sanitation and hygiene, the health of children are clearly negatively impacted upon. Substantial evidence in literature points to the fact that regular bouts of diarrhoea contribute to malnutrition thus making children less able to fight disease. General health screenings, taking into account components such as developmental stage and competencies, nutritional status, weight, height and cognitive functioning of children in the rural schools should be given greater consideration. If the health of children can be measured in terms of their growth and development, strategies to improve their ill-health and other interconnected variables must be developed. Implemented programmes related to the strategy to improve health must be monitored. Scaling up efforts to achieve better health of children will result in better education outcomes and will provide greater impetus towards achieving the MDGs.

5.3.6 Climate change and children

The literature and the findings raise alarm about the potential impact of climate changes and dwindling water sources, more specifically its impact on children. Awareness of the potential impact and the preparedness to respond through proper planning will reduce risk to vulnerable populations. Capacity building training should be started as a matter of urgency as to how to mitigate against the effects of climate change in respect of children and their development. Training could include personnel from the different sectors like health, education, community development, engineering, social development, agriculture, environmental and physical planners, economists and municipalities to be better prepared to respond to the effects of climate change.

5.4 Areas for further research

The following areas emerged as weak in the body of literature available. Further research is recommended:

- What impact does poor infrastructure have on the health of children and the achievement of education outcomes?
- What are more appropriate forms of sanitation for schools with poor access to water?
- To what extent is the school nutrition programme effectively monitored and evaluated? Are there alternative forms of nutrition programmes available for schools with poor access to water?
- What are the effects of climate change on children and what adaptation strategies can be recommended?

5.5 Conclusion

Learners and educators have provided rich insights into the profound and debilitating consequences of the effects of poor access to water at school level. The findings also extended to the effects of poor access to water at the community level which was an unintended but important discovery. The interdependence of various ecological systems at play, for achieving the South African dictum “a better life for all”, is clearly articulated. The experiences of the children with poor access to water point directly to them facing potentially destroyed lives in which they will be unable to reach their full potential. Educators too in this school setting are unable to derive the maximum benefit of their workday and achieve the desired outcomes of their educational endeavours. The challenges associated with poor access to water at the school and community levels are endemic and are attributed to systemic processes at the exosystemic level.

Commitments made by South Africa at the macrosystemic level, the interconnected millennium development goals, more particularly those related to education, health, water and sanitation, sustainable development and poverty reduction will not be

reached within the expected timeframe if conditions of this nature persist. The findings call for quick-acting decisive steps at the structural level. Immediate and focused intervention on quality education extends beyond the corridors of the education department.

The intention to redress inequalities in schools facing conditions of poor access to water has to be achieved through steadfast monitoring and evaluation of current and future programmes. This will be achieved through policy implementation, deployment of technical expertise and financial resources. Further, a strategy encompassing effective coordination of inter-sectoral and multi-disciplinary sectors amongst others, government, civil society, private sector, academia, donors is critically essential to achieve the goals of equitable and sustainable distribution of water. The unsustainable access to water in this schooling community has fuelled, and will continue to fuel, unnecessary human suffering. This will have immediate and long term consequences for individuals, communities, and the country as a whole which will impact on the global community. Leaving large proportions of children without access to water signifies a disregard for social justice and equity between children in urban and rural contexts. Water security must become a priority for the rural population. All strategic planning around access to water must be analysed from the perspective of social justice, human rights and the best interest principle where children are concerned. From a structural perspective, a more egalitarian society is being called for in order to redress past and present imbalances.

The school in this study is clearly not an enabling environment for effective teaching and learning and a major contributory factor is poor access to safe drinking sources. It predisposes itself in many ways, as a source for promoting disease and poor health status of learners and educators. The consequence is that this dysfunctional learning environment leads to the inability of learners to develop complex skills which inhibit their optimal development. These detract from providing substance to the right to education. The socio-economic right to water must be addressed from a standpoint that addresses the just and equitable distribution of resources. In addition

to water provision, sanitation will contribute to a healthier environment making access to the right to education a reality for many learners. Emphasis is drawn to an approach where planning, implementation, monitoring and evaluation of education are viewed from the broadest possible angle that promotes the holistic development of children.

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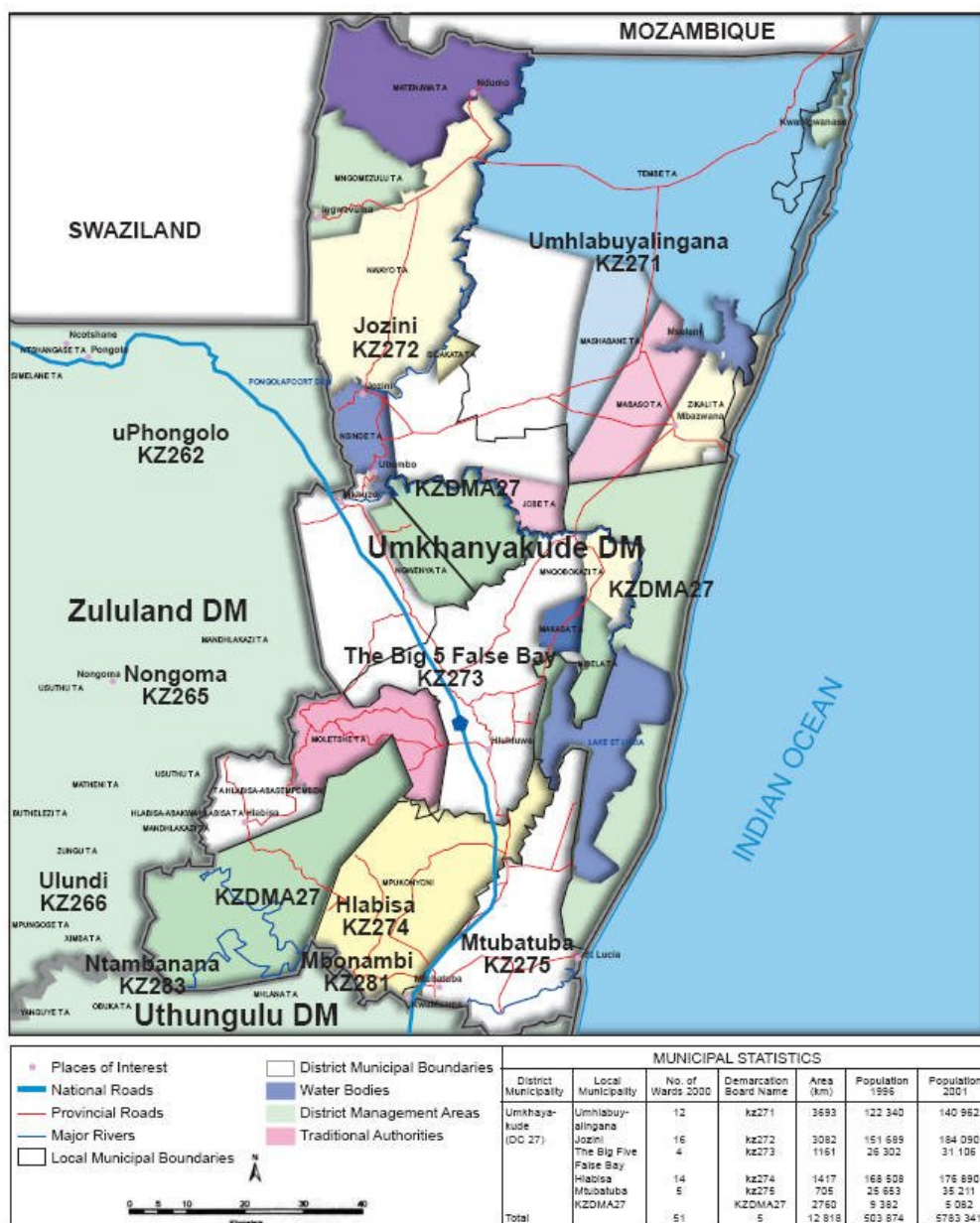
Legislation

- African Charter on the Rights and Welfare of the Child (1990)
- Children's Act 38 of 2005
- Constitution of the Republic of South Africa Act No 108 of 1996
- Convention on the Elimination of all Forms of Discrimination against Women (1979)
- Education Laws Amendment Act 24 of 2005
- National Water Act No 36 Of 1998
- South African Schools Act 84 of 1996
- The United Nations Convention on the Rights of the Child (1989)
- Water Services Act 108 of 1997

APPENDICIES

Appendix 1 – Map of Umkhanyakude District Municipality

Map of a part of the KwaZulu-Natal coastline depicting Jozini in the Umkhanyakude District Municipality in relation to other geographical areas where the research study was concentrated.



From:

<http://www.kzntopbusiness.co.za/2005/KZNMunicipalities/uMKHANYAKUDE%20DISTRICT/index.htm>

Appendix 2 – Semi-structured one-to-one interview guide - Educators

Semi-structured one-to-one interview guide - Educators

- ☐ Describe the situation of the school in relation to access to water?

Probes:

- Where does the school get water from?
- Who brings it in?
- Do you bring water to school and how much?
- What do you use to bring the water in?
- How many times in the last week has school had water?
- What steps have been taken to secure access to water?

- ☐ Have there been changes over the years regarding access to water?

Probes:

- When does the school have greatest access to water?
- When does the school have the least access to water?
- What are some of the reasons for these changes?

- ☐ What are some of the consequences of lack of access to water:

Probes:

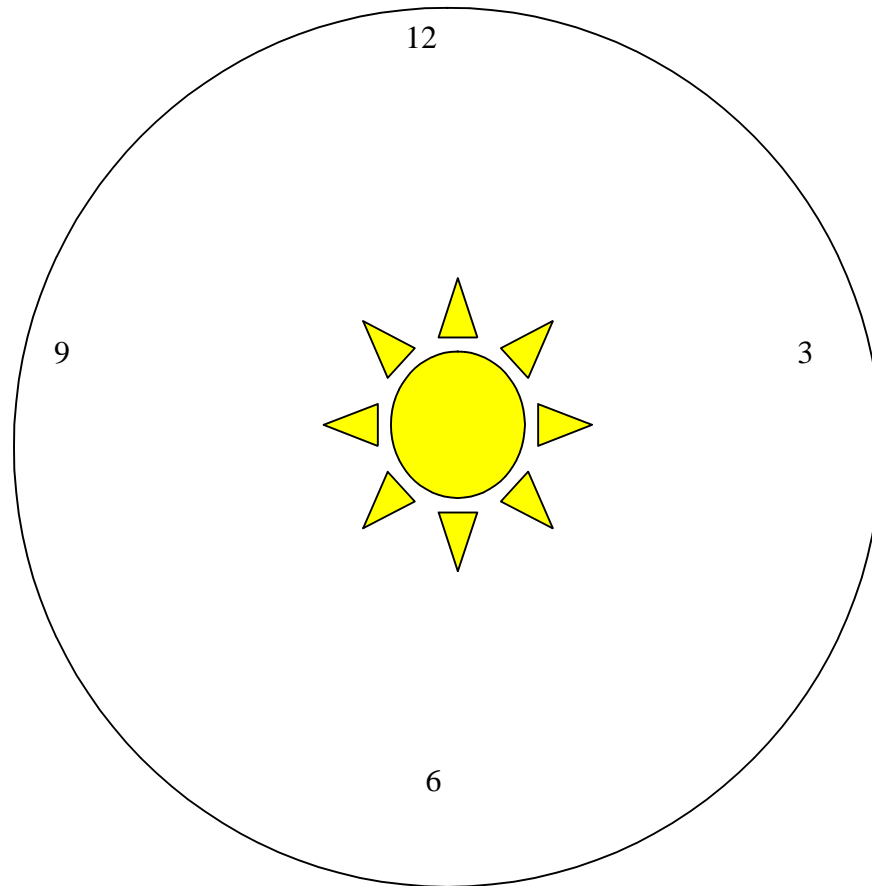
- on the school functioning,
- on educators and
- on learners;
- in promoting health awareness programmes, like washing hands;
- on concentration levels of learners and educators;
- for diseases;
- for absenteeism;
- for enrollment;
- for the school nutrition programme.

- ☐ What observations can be offered regarding:

Probes:

- the ways in which educators cope with the challenges related to water access;
 - the ways in which learners cope with the challenges related to water access?
- ☐ If there was sustained access to water in school what would be different?
 - ☐ What do you think the school can do to improve access to water in school?
 - ☐ What suggestions could you offer to government authorities and the department of education regarding access to water?

Appendix 3 – Activity clock



Appendix 4 – Focus group interview guide - Learners

Focus Group Interview Guide - Learners

Prior to the interview guide being administered, learners will be asked to individually sketch an activity clock that maps out their water related activities for the day. Thereafter discussion will be taken on the maps followed by relevant questions from the focus group interview guide.

- ☐ Describe the situation of the school in relation to access to water?

Probes:

- Where does the school get water from?
- Who brings it into school?
- Do you bring water to school and how much?
- What do you use to bring the water in?
- What do your caregivers say about bringing water to school?
- When does the school have the most/least water?
- How many times in the last week has school had water?
- Have you noticed any changes over the years in the amount of water available at school?
- What are some of the reasons for these changes?

- ☐ What happens to you when you do not have water at school?

Probes:

- Are you able to learn and play?
- Do you ever miss school, what are some of the reasons?
- Have you ever discussed with anybody about lack of water at your school?
If yes, what did they say or do?

- ☐ Describe what happens:

Probes:

- to your friends when there is no water at school
- to your educators when there is no water at school

- ☐ Describe some of the ways in which:

Probes:

- you cope when there is little or no water at school;
 - your friends cope when there is little or no water at school;
 - your educators cope when there is no water at school.
- ☐ If there was tapped water at school what would be different?
- ☐ What do you think your school can do to improve access to water in school?
- ☐ What suggestions could you offer to government authorities and the department of education regarding access to water?

An additional question for female learners:

How are female learners affected when they are menstruating and access to water is poor? (This question will be directed to female learners.)

Appendix 5 - Observation schedule

Observation Aspect	Comment
Early morning	
Are learners/educators bringing water to school?	
What types of containers are being used?	
How is food preparation handled?	
1st Interval	
Do learners/educators have access to water for hand washing before meals and after toilet usage?	
Do learners/educators have access to drinking water?	
2nd Interval	
Do learners/educators have access to water for hand washing before meals and after toilet usage?	
Do learners/educators have access to drinking water?	
General observation	
Situation of taps/tanks <ul style="list-style-type: none"> • Inside school • Outside school • How many taps/tanks? 	
How is water stored?	
other significant aspects	

Appendix 6 – Consent form for parent/caregiver

UMNYANGO WEZOKUNAKEKELWA NOKUVIKELWA KWEZINGANE KWIZIQHU ZEMATERS ESIKHUNGWENI SEZEMFUNDO EPHAKEME KWAZULU-NATAL. MZALI/BAMBAMZALI UMHLAHLANDLELA OMAYELANA NOCWANINGO

Isihloko: Ukungatholakali lwamazi kanye nesimo hlalo sabafundi kanye nothisha abaphila ngaphansi kwaso emabaneni aphansi ezefungo ezindaweni ezisemakhaya eJozini ,KwaZulu-Natal, South Africa.

Umcwaningi: B Devnarain, BA Social Science

Izonombolo zokuxhumna: 031 2028081/2

Umphathi womcwaningi: Professor CR Matthias, School of Social Work

Izonombolo zokuxhumna: 031 260 7922

Inhloso yokwenziwa kocwaningo ukuthola ulwazi olunzulu nokuqondisisa isimo kubafundi bebanga lesikhombisa kanye nothisha ngesimo sokushoda kwamanzi ezikoleni. Imiphumela yocwaningo iyosetshenziswelwa ukwenza uhlaka kanye nokunye okungavela okuthintana nokushoda kwamanzi ezikoleni nano kuthi kuwuthinta kanjani umphakathi ucwaningeni oluyolandela.

Ngigathanda ukuthola imvume yokubuza ingane yakho ukuthi yiluphi ulwazi abanalo mayelana nokushoda kamawanzi ezikoleni. Ingame ngayinye ilindeleke ukuba yenza umdwebo obonisa ukusebenziswa kwamanzi bayobe sebephendula imibuzo beyiqoqo labafundi bobulili kanye nebanga elifanayo. Lesisifundo socwaningo siyoba nemibuzo emayelana nokuthi umntwana yena wazini ngesimo sokushoda kwamanzi, kanye nokuthi baphila kanjani ngaphansi kwalesi simo esikoleni. Inkulumo yonke iyoqoshwa.

Lengxoxo izohlukana izigaba ezintathu ezingathatha cishe ihora nemizuzu eyishumi nahlanu . Abukho ubungozi obukhoma , nokulima izidleko nazo azikho

kulolucwaningo. Akuphoqelekele ukuthi uphendula uma uzizwa ukuthi awukhululekile ukuphendula umbuzo.

Lonke ulwazi oluyotholaka lapha siyolugcina luyimfihlo futhi lemininigwane angeke ize yaziwe omunye umuntu ngaphandle komcwaningi kanjalo nomphathi mcwaningi kuphela. Ukuzihlanganisa komntwana wakho nalolucwaningo kusuka othandweni. Futhi banelungelo lokwenqaba ukuphendula imibuzo akekho namunye onelungelo lokubajezisa uma bengaphenduli. Umntwana unelungelo kokweqaba kanye nokuhoxha kulolucwaningo nanoma yisiphi isiskhathi. Ukukho mklomelo ubekiwe kwaba bambe iqhaza.

Lonke ulwazi uluyotholaka kulolucwaningo luyogcinwa luyifihlo. Umntwana ngeke achaza nanoma kumuphi umbhalo oyobe ukhona omayelana nalolu cwaningo. Inkulumo eziqhoshiwe ziyocinwa ziyifihlo ngaphansi komthetho. Umqulu oyobe usubhaliwe ngocwaningo kanye nezi nkulumo eziqhoshiwe ziyogcinwa ndawonye. Umphathi omkhulu wocwaningo nguyena oyokwazi ukuthola lomqulu kanye nezinkulumo eziqhoshiwe.

Ungathinthana no Ms B Devnarain kulenombelo: 031 202 8081 uma unemibuzo okanye kukhona ofuna ukukusho mayelana nalesisifundo.

Ngifundile yonke iminingwane engenhla ngiyaqonda ukuthi isho ukuthini ngingathanda ukuba ingane yami ibe yingxenye yalolucwaningo.

Igama lofundi (umbhalo umkhulu):_____

Usuku:_____

Igama lomzali kanye siginisha:

Appendix 7 – Assent form for learners

UNIVERSITY OF KWAZULU-NATAL MASTERS STUDENT IN CHILD CARE AND PROTECTION

Assent Form for Learners

Project Title: Poor access to water: the experiences of learners and educators within a rural primary school in Jozini, KwaZulu-Natal, South Africa.

Researcher: B Devnarain, BA Social Science

Contact details: 031 2028081/2

Research Supervisor: Professor CR Matthias, School of Social Work

Contact Details: 031 260 7922

1. This study is about the experiences of children for whom water is not easily available.
2. I understand that I will be asked to draw a picture of what I do relating to water.
3. I also understand that I will be asked a few questions which I will answer within a group of learners from my grade at my school.
4. My participation in this study is voluntary.
5. Although I got permission from my parent/guardian to participate in three sessions in this study, I know that I can choose not to participate in the study at any time.
6. I know that I will not be disadvantaged in any way if I do not take part in the study.

Name of Learner

Signature of Learner

Date

Appendix 8 – Consent form for educators

UNIVERSITY OF KWAZULU-NATAL MASTERS STUDENT IN CHILD CARE AND PROTECTION

Consent form for educators

Project Title: Effects of poor access to water on learners and educators in a rural primary school within Jozini, KwaZulu-Natal, South Africa.

Researcher: B Devnarain, BA Social Science

Contact details: 031 2028081/2

Research Supervisor: Professor CR Matthias, School of Social Work

Contact Details: 031 260 7922

The purpose of this research is to gain an in-depth understanding of the experiences of educators regarding lack of access to water at school. It has been suggested that lack of access to water at school affects children's health and school performance. Results of the study will be used to guide further research and discussions concerning access to water and the important effects it has on the school community.

I would like to obtain your consent to ask you questions about your experiences in relation to access to water at school. This study will focus on your experiences, coping mechanisms, and solutions to challenges identified regarding lack of access to water in school. The interview will be tape recorded.

You are invited to participate in an interview for approximately one hour and fifteen minutes. There will be no risk, injury, or cost involved with participation in this study. It is not anticipated that any discomfort may be experienced when responding to questions.

All information obtained will be completely anonymous. The information will be strictly confidential and not shared with anyone other than the researcher and supervisor. Your participation is voluntary. You may refuse to answer any question without penalty. There is no financial reward for participation.

The records will be kept confidential to the extent provided by law. A copy of this document will be kept together with the research records on this study. Only the primary investigator and the research supervisor will receive the data provided.

You may contact **Ms B Devnarain** at telephone number **031 202-8081** for answers to further questions about this research or anything you may feel is related to the study.

I have read the information given above. I understand the meaning of this information. I Consent to participating in this study.

Educator's Signature

Date