

**LEARNING PATHWAYS OF KEY OCCUPATIONS
RELEVANT TO SUSTAINABLE DEVELOPMENT IN
MAKANA MUNICIPALITY**

Full Thesis

**Submitted in fulfilment of the requirements for the degree
of Master of Education (Environmental Education) at
Rhodes University**

Supervisor

Professor H.B Lotz-Sisitka

By

Nthabiseng E. Mohanoe

December 2013

ABSTRACT

This study presents results to be contributed to the field of Environmental Education. It is a new arena for qualifications development and implementation in the South African Education and Training system. The study is located in the context of a joint research programme focusing on understanding issues of articulation and learning pathways development for sustainable development, established between the South African Qualifications Authority (SAQA) in partnership with Rhodes University, Environmental Learning Research Centre (ELRC). Phase 1 of the SAQA/ELRC research showed that researching workplace learning requires an understanding of *learning pathways*, if it is to be meaningful. It is for this reason that this research in phase 2 focuses specifically on learning pathways in the context of a local municipality in Makana.

Using a case study research approach and qualitative data, this study investigated learning pathways for three occupational categories at different levels in the Makana Municipality: 1) key managerial occupations; 2) key supervisory occupations; and 3) key workers occupations *relevant to sustainable development* and how they are shaped and experienced. It also identified system and structural factors influencing articulation and access issues relevant to progress in learning pathways relevant to these key occupations.

The study was designed using a case study research. Primarily, qualitative research techniques were employed to generate data, including observations, interviews and document analysis. The study used inductive, abductive and retroductive modes of inference to interpret and analyse data, using critical realist and systems perspectives.

The findings on worker learning pathways show that there is a discrepancy between the Training Policy and the Environmental Training and Education Strategy of Makana Municipality. The issue of complexity in learning pathways and social structural factors such as inequality emerged as factors that strongly influenced learning pathways for workers. Learning pathways for workers involved in sustainable development practices hardly existed or simply did not exist. Interesting transitions associated with learning pathways such as from home, to work or no

schooling in the case of the workers, showed a pattern of emergence. These showed that learning pathways are not accessible and equally available to everyone as can often erroneously be assumed.

The findings on supervisor learning pathways show diverse complexities as well as related issues, when compared to the worker's learning pathways. Issues such as overlapping of study and work emerge as influential to supervisor learning pathways. Lack of support is, however, an influencing factor, but in a different context compared to the workers, and mainly focuses on lack of bursaries, highlighting training policy issues. This aspect was found to also relate to lack of proper resources in order to enable them to learn and do their job better; an issue raised by the workers too. This challenge of lack of support in various forms posed a barrier to learning pathways.

Findings related to the manager's learning pathways show a noticeable gap between the workers, supervisors and managers. The manager's generally have higher education qualifications related to sustainable development, and in certain cases managers have had exposure to international training related to sustainable development. Factors such as ample opportunities for learning, mentoring, association on professional bodies, and decision making powers influenced the manager's learning pathways. It was also notable that while managers receive occupationally directed training, it is not necessarily sustainable development related.

In theory, the results highlighted a need to understand systems as a whole and how their integration is important in influencing learning pathways. There were also underlying mechanisms and structures identified which needed to be unravelled and understood as these were found to influence learning pathways in this study.

The study highlighted critical insights in understanding how learning pathways in a local municipality context (the case of Makana Municipality) are constructed by both systems and structural factors in the workplace, while also identifying ways in which agency of those engaged in learning for sustainable development in workplaces is enabled and /or constrained by such factors. It also showed the persistence of deep-seated inequalities of opportunity, especially for workers, to access and participate in sustainable development learning pathways.

LIST OF ACRONYMS

ABET	Adult Basic Education and Training
ADEA	Association for the Development of Education in Africa
B.A	Bachelor of Education
B. Tech	Bachelor of Technology
CETA	Construction Education and Training Authority
CHE	Quality Council for Higher Education
CMIP	Consolidated Municipal Infrastructure Programme
CPMD	Certificate Programme in Management Development
DEAT	Department of Environmental Affairs and Tourism
DHET	Department of Higher Education and Training
EE & T	Environmental Education and Training
ELRC	Environmental Learning Research Centre at Rhodes University
ESD	Education on Sustainable Development
ESSP	Environmental Sector Skills Plan
ESPA	Ecosystem Services Poverty Alleviation programme
ETQA	Education and Training Quality Assurance
FET	Further Education and Training
GETC	General Education and Training Certificate
HDE	Higher Diploma in Education
HR	Human Resources
HSRC	Human Science Research Council
ICLEI	International Council for Local Environment Initiatives
IDP	Integrated Development Training
IISD	Institute for Sustainable Development
LEAP	Local Environmental Action Plan

LED	Local Economic Development
LG SETA	Local Government Sector Education and Training Authority
MIIU	Municipal Infrastructure Investment Unit
MIG	Municipal Infrastructure Grant
NEMA	National Environmental Act
NSDS	National Skills Development Strategy
NSSD	National Framework for Sustainable Development
NQF	National Qualifications Authority
MA	Masters in Arts
MBA	Masters in Business Administration
PIVOTAL	Professional Vocational Technical Academic Learning programme
QC	Quality Council
QCTO	Quality Council for Trades and Occupations
RPL	Recognition of Prior Learning
RSA	Republic of South Africa
SALGA	South African Local Government Agency
SAQA	South African Qualifications Authority
SETA	Sector Education and Training Authority
SDF	Skills Development Framework
SMME	Small Medium Enterprise
SSP	Sector Skills Plan
SUS	Supporting Urban Sustainability
SWEDSD	International Centre of Education for Sustainable Development
UN	United Nations
UNESCO	United Nations Education, Science and Cultural Organisation
UNICED	United Nations Conference on Environment and Development

UMALUSI	Quality Council for schooling and Further Education & Training
WESSA	World and Environmental Society of South Africa
WSP	Workplace Skills Plan
WSSD	World Summit on Sustainable Development

ACKNOWLEDGEMENTS

I am extremely appreciative for the invaluable and patient guidance given me by my supervisor, Prof. Heila Lotz–Sisitka.

I am deeply indebted to Makana Municipality for providing a site for my research work. Thank you to all the employees of Makana Municipality; workers, supervisors and managers who willingly and cooperatively participated throughout the process of my research study, despite their busy and tight schedules.

A deeply humbling gratitude goes to the South African Qualifications Authority (SAQA) for the full-time scholarship awarded me for the entire duration of my study. Thank you for contributing towards experiences shaping my own learning pathway.

My heartfelt gratitude goes to Jonathan Wigley and Lawrence Sisitka for affording me the opportunity to participate in the process of the Skills Needs Analysis of the workers conducted in the Municipality, which deepened and shaped the emergence of rich and insightful data for this study.

My sincerest thanks also go to all my colleagues, Masters and PhD. Thank you for being my extended family. The steadfast support from all of the staff at the Rhodes University Environmental Learning Research Centre (ELRC) is particularly acknowledged. Thank you Prof. Rob O'Donoghue, Dr. Lausanne Olvitt and Dr. Ingrid Schudel. I further wish to thank the ELRC for affording me the platform of a wide spectrum of opportunities, enriching my professional profile and career development, a truly insightful and profound learning pathway. For this I am immensely grateful, and this will live with me always.

To all my best friends and closest cousins, particularly Monkatsu and Mahlape who supported me throughout the journey of my study, my appreciation is immeasurable. Thank you for being on call for me whenever I needed inspiration to keep charging ahead.

Finally, I am truly beholden to my family, Papa, Mama and my one and only sibling and brother, Makhaola who gave unstintingly of their inspiration and courage. I thank them for their forbearance. Without their unrelenting and gentle prodding over the years, I would not have come this far in my academic endeavours. I extend a very special love to my little nephew Khumo, and his magically inspiring words, continuously insisting on knowing what class I was in, and when I was finishing school to come back home. Furthermore, a deep indebtedness of gratitude goes to my beloved late husband, Victor Moche and my late sister Moleboheng Mohanoe-Morule, my guardian angels throughout this journey of my academic life, may their souls rest in peace.

Table of Contents

ABSTRACT.....	i
LIST OF ACRONYMS.....	iii
ACKNOWLEDGEMENTS.....	vi
CHAPTER 1	1
OVERVIEW AND CONTEXT OF THE STUDY	1
1.1 Introduction	1
1.2 Broader Context of the Study	1
1.3 Selecting a Narrower Context for the Study	2
1.4 Research Question and Goals	3
1.5 Structure of the Study.....	4
CHAPTER 2	6
LITERATURE REVIEW	6
2.1 Introduction	6
2.2 Overview and Context.....	7
2.3 Sustainable Development and Capacity Building	10
2.4 The Environmental Sector Skills Plan for South Africa (DEA, 2010).....	21
2.5 Skills System and Learning Pathways.....	24
2.6 Theoretical Bases and the NQF as a ‘Differentiated’ System	32
2.7 Occupationally Directed Training.....	40
2.8 Training Needs Analysis	43
2.8. Conclusion.....	48
CHAPTER 3	49
RESEARCH METHODOLOGY.....	49
3.1 Introduction	49
3.2 Research Design and Methodologies.....	49
3.2.1 Case study research	49
3.2.2 A four phase research design.....	49
3.2.3 An iterative, theoretically informed approach to data generation and analysis.....	51
3.3 Data Collection: Further detail.....	56
3.3.2 Document analysis	59
3.3.3 Focus group interviews:	60
3.4 Validity, Ethics and Trustworthiness.....	62

3.5 Reflections on the Methods Used.....	64
3.6 A Critical Review of the Research	67
3.7 Conclusion.....	67
CHAPTER 4	69
DATA PRESENTATION – LAYER 1 – EMPIRICAL EXPERIENCES OF LEARNING PATHWAYS.....	69
4.1 Introduction	69
4.2 The Workers’ Stories.....	69
4.3 Policy and Strategic Documents and Worker Learning Pathways	80
4.3.1 Mobility and progression	81
4.3.2 Access.....	82
4.3.3 Quality.....	83
4.3.4 Issues / Interesting Aspects / Complexities related to sustainable development practices and learning pathways.....	84
4.4 The Supervisors’ Stories.....	88
4.4.1 Supervisor 1 (S1)	88
4.4.2. Supervisor 2 (S2)	90
4.4.3. Supervisor 3 (S3)	92
4.4.4 Supervisor 4 (S4)	94
4.4.5 Supervisor 5 (S5)	96
4.5 Supervisors’ Learning Pathways and Policy and Strategic Documents.....	99
4.5.1 Experiences of systems factors	99
4.5.3 Summative perspective on supervisors’ learning pathways.....	104
4.6 Learning Pathway Stories of Managers	104
4.6.1 Manager 1 (M1)	104
4.6.2. Manager 2 (M2)	107
4.6.3 Manager 3 (M3)	110
4.6.4 Manager 4 (M4)	113
4.7 Managers’ Learning Pathways and Policy and Strategy Documents	119
4.7.1 Systems factors (Educational background).....	119
4.7.2 Mobility/progression	120
4.7.3 Access.....	122
4.7.4 Experiences of systems factors	123
4.7.5 Access.....	123
4.7.6 Job descriptions, occupational demands and activities.....	124
4.8 Conclusion.....	125

CHAPTER 5	126
DATA PRESENTATION –LAYER 2 [EVENTS]	126
5.1 Introduction	126
5.2 Events Influencing Workers’ Learning Pathways	126
5.2.1 Policy	126
5.2.2 Training opportunities	126
5.2.3 Skills development planning / Workplace Skills Plan (WSP)	128
5.3 Events Influencing the Learning Pathways of the Supervisors	130
5.3.1 Training events.....	130
5.4 Events Influencing the Learning Pathways of the Managers.....	132
5.4.1 Skills Development Plan/WSP	132
5.4.2 Training opportunities	133
5.4.3 Acquisition of skills and knowledge	136
5.4.4 Sustainable development projects	138
5.4.5 Mentoring	139
5.4.6 Job descriptions and associated expectations.....	141
5.5 Conclusion.....	143
CHAPTER 6	144
DATA PRESENTATION –LAYER 3: UNDERLYING MECHANISMS AND STRUCTURES SHAPING LEARNING PATHWAYS.....	144
6.1 Introduction	144
6.2 Structural Factors and Mechanisms Shaping Workers’ Learning Pathways.....	145
6.2.1 Inequality	145
6.2.2 Social relations and lack of freedom.....	146
6.2.3 Marginalisation and lack of training provided	148
6.2.4 Organisational inefficiency	149
6.2.5 Power relations	151
6.2.6 Political neglect.....	152
6.2.7 Legislative requirements and compliance	152
6.2.8 Gender Issues.....	153
6.2.9 Language and communication.....	154
6.3 Structural Factors and Mechanisms Shaping Supervisors’ Learning Pathways.....	156
6.3.1 Access to education and training.....	156
6.3.2 Choice of subjects and related studies	157
6.3.3 Higher education and gender	158

6.3.4 Marginalisation and inadequate provisioning of training	158
6.3.5 Retirement age and lack of RPL systems	159
6.3.6 Legislation requirements	160
6.4 Structural Factors and Mechanisms Shaping Managers' Learning Pathways.....	161
6.4.1 Access to higher education and RPL	161
6.4.2 Access to resources.....	163
6.4.3 Legislative requirement	164
6.4.4 Institutional inefficiency	165
6.5 Conclusion.....	169
7.1 Introduction	170
7.2 Reviewing and Commenting on the Process of Investigating Learning Pathways	170
7.3 Analytical Statement 1:.....	172
7.4 Analytical Statement 2:.....	175
08 September 2011.....	205
FOCUS GROUPS:.....	205
07 February 2012	207
20 February 2012	210

CHAPTER 1

OVERVIEW AND CONTEXT OF THE STUDY

1.1 Introduction

Chapter 1 provides an introductory orientation to the study. It refers briefly to the overview and context of the study. This chapter also provides the background information necessary for an understanding of the research question, both directly and indirectly. Lastly, it provides an overview of the framework of the study.

1.2 Broader Context of the Study

There has been rapid transformation of both the Environmental and the Education and Training landscape since 1994 in South Africa. Environmental issues have been put on the transformation agenda which includes various policies to govern environmental management. A recently produced Environmental Sector Skills Plan (DEA, 2010), the first of its kind, identified a number of key skills demands in the environmental sector, all of which are particularly significant to the efficacy of service delivery in the public sector, and which also affect efficacy and developmental competitiveness of the private sector. These include: leadership skills, supply and stability; development of new skills for greening the economy; sustainable development planning skills; skills for mainstreaming environment into development (greening of existing skills); and skills to develop and expand the sector, which include Environmental Education and Training skills to ensure that there is adequate capacity to deliver environmental training to an emerging and rapidly growing sector (DEA, 2010). Scott and Gough (2004) noted that sustainable development is an ongoing learning process, and therefore involves developing ongoing learning pathways that focus on improvement of quality of life of individuals and social systems, and quality of the environment.

This research seeks to address the issue of skills demand through more careful examination of how professional development of individuals happens in the workplace, particularly within Makana Municipality, where learning pathways in key occupations related to sustainable development were focused on. Understanding skills related issues relevant to local government is a priority of national

government (DEA, 2010) and was identified by the Department of Environmental Affairs as a neglected area of skills development planning for sustainable development (ibid). Understanding learning pathways for sustainable development is a key focus of the Rhodes University / South African Qualifications Authority research programme in which this study is located. This wider research programme emerged from earlier research into workplace learning, where it was identified that not much was known about how learning pathways of sustainable development practitioners in South Africa were being structured, experienced and/or accessed (Lotz-Sisitka, 2011).

1.3 Selecting a Narrower Context for the Study

This study, as mentioned above, is situated in the local government context of Makana Municipality. The Makana District includes a mix of rural, peri-urban and urban settlements. Makana Municipality is the seat of Grahamstown, located in the Eastern Cape Province of South Africa. It has a total area of 423338 Km² and caters for approximately 200 000 people. According to the Local Government Municipal Act 117 of 1998 (RSA,1998b), Makana Municipality falls under category 'B', which means that it is a local municipality with a small town or towns as an urban core.

This research site has been selected because of various interactions and involvement that I had with Makana Municipality through the green city / Supporting Urban Sustainability programme, and because it is in close proximity to Rhodes University where I was undertaking this study as a full-time scholar.

I was selected as a participant in a Supporting Urban Sustainability (SUS) Programme in 2011. In this programme I represented the Environmental Learning Research Centre (ELRC) at Rhodes University, whilst undertaking this study. This programme is an Education for Sustainable Development (ESD) programme, implemented in partnership with Makana Municipality, supported by the Swedish International Centre of Education for Sustainable Development (SWEDESD) and the SADC Regional Environmental Education Programme. The programme is focused on ecosystem services approaches to poverty alleviation (ESPA) in urban settings, as a strategy to achieve sustainable development, and is particularly focused on the role of education and learning in this context. "ESPA seeks to tie

together experiences of social and environmental programmes in order to address poverty alleviation in a more holistic manner, and recognises the interdependence between humans and nature” (SWEDED notes, 2011). The Supporting Urban Sustainability programme responds to capacity development needs to address nationally relevant priorities including sustaining ecosystems and using resources sustainably; investing in sustainable economic development and infrastructure; creating sustainable communities; and enhancing systems for integrated planning and implementation through identification of a practical project on Urban Agriculture development for poverty alleviation. This project provided a wider context for this study, and allowed me to become familiar with local government and sustainable development issues, especially in the Makana district, but also more widely as I was exposed to national and international perspectives on such issues.

Secondly, I also participated in a Skills Needs Analysis process within Makana Municipality, proposed and supported by the Local Government Sector Education and Training Authority (LG SETA), in partnership with the Wildlife and Environment Society of South Africa (Wigley & Sisitka, 2011), which seeks to identify capacity related issues relevant to Environmental Practices training in local government. This research extended both the SUS programme’s objectives, and the Makana Municipality’s plans for implementing their Environmental Education and Training Strategy (which was originally developed through a partnership with the Rhodes University Environmental Learning Research Centre) through the proposed Environmental Practices training. The SUS programme and the Environmental Education and Training Strategy of the Municipality therefore provided the contextual knowledge through which I was able to identify occupations relevant to the study of sustainable development learning pathways, which forms the main focus of this study (see Figure.1 in Chapter 2).

1.4 Research Question and Goals

The reviews, experiences and contextual knowledge gathered in the process of selecting my research study site, together with the broader interest and focus of the Rhodes University / SAQA research programme focusing on learning pathways for sustainable development, prompted me to arrive at this research question:

What learning pathways exist for key occupations relevant to sustainable development in Makana Municipality, and how are these shaped and experienced?

The goals of the study included:

- To investigate learning pathways of three key occupational categories (workers, supervisors and managers) relevant to sustainable development and how they are shaped and experienced.
- To identify system and structural factors influencing articulation and access issues relevant to progress in learning pathways relevant to the key occupations.

1.5 Structure of the Study

The study is comprised of seven chapters which may be summarised as follows:

Chapter 1 provides an introductory orientation. It draws brief attention to the selection of a study context which led to the research question of this study, and provides an overview of the research question, goals and study chapters.

Chapter 2 reviews relevant literature from various sources. It provides insight into literature that is crucial for developing a deeper contextual understanding of the research questions and goals. It provides a backdrop for data analysis.

Chapter 3 provides insight into the theoretical foundation of the study, as this relates to learning pathways. It discusses aspects of systems theory found to be relevant to developing an understanding of the research questions and goals, and the ontological aspects of Basic Critical Realism. These theories provide the perspectives that helped to further contextualize a critical, qualitative discussion of the complex issues concerning learning pathways of key occupations related to sustainable development in local government context.

Chapter 4 provides the detail of the research design of the study. It will present extracted data at layer 1 of the domain of the Empirical for analysis and processing. This processing will focus on investigating learning pathways of the key occupations relevant to sustainable development, how these are shaped and experienced.

Chapter 5 will also be concerned with the research design of the study in descriptive nature. It will present gathered data at layer 2 of the domain of the Actual for analysis and processing. This layer of analysis will focus on the events as experienced by the agents interviewed.

Chapter 6 will be concerned with layer 3 of analysis at the domain of the Real. Systems and structural factors influencing articulation and access issues relevant to progress in learning pathways relevant to the key occupations will be identified in this chapter.

Chapter 7 The research will be summarised in the form of discussions based on relevant findings and recommendations. The recommendations will take into account the complex issues and aspects influencing learning pathways of key occupations related to sustainable development in Makana Municipality. Chapter 7 is broadly covered in six carefully identified analytical statements of workers, supervisors and managers. This chapter is sealed by a brief conclusion and future implications of the study as perceived by the researcher.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

A review of literature is by its very nature some kind of historical enquiry. In the case of learning pathways of key occupations and how they relate to sustainable development in the context of local government, it is more so. Literature reviewed paid particular attention to six core factors, all of which was necessary to develop a holistic understanding of the research problem and goals. As mentioned in Chapter 1, the research responds to a lack of detailed understanding of learning pathways construction and experience for sustainable development in the local government sector (DEA, 2010). To understand this problem in more depth, there was a need to focus on the following six core factors, which provided a contextual and conceptual framework for the study:

- Sustainable development and capacity building
- Environmental sector skills issues
- Skills system and learning pathways
- Systems theories in relation to the National Qualifications Framework (NQF) as a differentiated system
- Occupationally directed training
- Training needs analysis and Supporting Urban Sustainability (SUS).

The literature reviewed in this chapter focused not only on the six factors, but also on the necessity of developing an integrated perspective on the six factors, as they relate to learning pathways of key occupations relevant to sustainable development within the context of local government (Makana Municipality). The six factors provide a structure for the chapter, and background to the study and build a line of coherent discussion. Included in the literature review are references to journals, articles, books, contextual profiling of Makana Municipality and other related material relevant to this study. This orientation provides a brief but necessary broad sweep of factors and concepts that need attention in order to render them meaningful in this study.

2.2 Overview and Context

As mentioned briefly in Chapter 1, Makana Municipality is the local Municipality that encompasses the city of Grahamstown. It is located in the Cacadu district, in the rural areas of the province of the Eastern Cape of South Africa. The Municipality has a population of approximately 200 000 people. The Local Government White Paper (RSA, 1998) commits this municipality, along with all others in South Africa, to sustainable development and states that “Developmental local government is local government committed to working with citizens and groups within the community to find sustainable ways to meet their social, economic and material needs and improve the quality of their lives”. Quality of life issues in Makana Municipality have these dimensions which are all related to sustainable development.

Related to the issue of capacity in local government, is the issue of apartheid in South Africa which has been blurred and saturated with political considerations over the years. The dynamics thereof have shaped historical forms of discrimination and oppression (Mohano, 1997). Historically, the Group Areas Act No 41 of 1950 (RSA, 1950) played a significant role in the removal of blacks from urban areas to rural areas, a factor which has affected aspects of disadvantaged service delivery to this day (Wigley & Sisitka, 2011). Historically local government systems were set up mainly to serve white municipalities with small and manageable population numbers for advantaged service delivery. Burger (2003) reports on the nature of poor service delivery, and states that the role of local governments has become more dynamic and is no longer merely one of service delivery but are key agents of economic delivery.

Since 1994, in the post apartheid era, a number of different programmes have been initiated and introduced to remedy the above untenable situation. These include the Consolidated Municipal Infrastructure Programme (CMIP), Municipal Infrastructure Investment Unit (MIIU), Municipal Systems Programme, Municipal Infrastructure Grant (MIG), Local Economic Development (LED) and Poverty Alleviation, and Integrated Development Plans (IDP's) (RSA, 2000). These programmes are key in relation to the present context of local government, and influence the need for capacity building for sustainable development.

Related to the different programmes initiated and introduced are a number of legislative requirements which play a significant role in local government. The constitution of South Africa (RSA, 1996) provides for matters related to local government, the environment and education. The National Environmental Act (NEMA) of 1998 (RSA, 1998a) provides for achieving the objectives of environmental management and sustainable development. The Local Government: Municipal Structures Act 117 of 1998 provides for local government structures and internal systems (RSA, 1998b). The Local Government: Municipal Systems Act 32 of 2000 (RSA, 2000) provides for the core principles of mechanisms and processes that are necessary to enable municipalities to move progressively towards the social and economic upliftment of local communities, and ensure universal access to essential services that are affordable to all. Most important in this Act, related to the context of this study, is the principle of requiring local government to strive towards, "...the overall social and economic upliftment of communities in harmony with their local natural environment" (RSA, 2000:1). The Local Government Municipal Systems Act (No.107 of 1998) (RSA, 1998b) requires authorities to have Integrated Development Plans (IDP). Lastly, but not least important is the Workplace Skills Plan (WSP). In terms of the Skills Development Levies Act of 1999 (RSA, 1999), an employer can reclaim 10% of its levy payment on submission of a Workplace Skills Plan to the relevant Sector Education and Training Authority (SETA). SETAs are a structure put in place by the Minister of Labour to ensure that training is funded, and that it takes place according to quality managed, accredited training programmes, and is an instrument of the National Qualifications Framework. In addition, the function of the SETA as highlighted in the Skills Development Act of 1998 is to approve the Work Place Skills Plans. In the case of this study, the Local Government SETA (LG SETA) is the one that municipalities submit their workplace skills plans to, and where they are able to claim funding to cover training costs that are managed according to the said workplace skills plan. These are prepared and submitted annually (LG SETA, 2009).

The South African Government supports Agenda 21, which was adopted at the 1992 United Nations Conference on Environment and Development (UNCED,1992). UNCED states that the purpose of Agenda 21 is to set out policies and programmes

to achieve a balance between the primary forces of environmental change (resource consumption, pollution and population growth) and the world's natural resources base on which sustainable development depends.

Relevant to this study and to the government's commitment to sustainable development at local government level are the outcomes of the World Summit on Sustainable Development (WSSD), which was held in Johannesburg 10 years after the Rio Earth Summit where Agenda 21 was adopted (UN, 2002). The following main outcome objectives for sustainable development are relevant as documented in the Johannesburg Plan of Action (UN, 2002):

- Halving the number of people lacking access to basic sanitation by 2015,
- Minimising the harmful effects on health and environment from the production and use of chemicals by 2020,
- Significantly reducing the loss of biodiversity by 2010,
- Increasing substantially the use of renewable energies in global energy consumption,
- Setting up a 10 year framework for programmes on sustainable consumption and production,
- Taking steps towards the eradication of poverty, and
- Implementing food security by 2005.

A three day local government session was held which ran parallel to the WSSD. From this session the following mandates for local government structures were arrived at:

- **The Johannesburg Call** was a statement of commitment by local governments of the world to realise the goals, aspirations and targets of the Johannesburg Implementation Plan,
- Through the **Local Government Declaration**, leaders committed themselves to the goals of Agenda 21, and
- The **Declaration on Sustainable Development** by African Mayors was a commitment to be achievement of sustainable development (RSA, 2007).

South Africa has committed itself to the outcomes and targets set during the WSSD and has put in place a National Framework for Sustainable Development (NSSD)

which was released in 2007 (RSA, 2007). This includes mandates for local government structures, most notably a renewed commitment to Local Agenda 21 (ibid).

The 2002 World Summit on Sustainable Development described education as a ‘Key agent for change’ in its Plan of Implementation (Paragraph 114) (UN, 2002) and recommended to the UN General Assembly the adoption of a Decade of Education for Sustainable Development (2005-2015). The UN Decade of Education for Sustainable Development (2005-2015), led by UNESCO, emphasises the need for education for sustainable development in a range of different contexts which include:

- Non-formal learning, including adult and community learning,
- Community-based organisations and local civil society,
- The workplace (involving formal employee training), and
- The formal education sector (schools, colleges, ABET, pre-school vocational training and higher education) (UNESCO, 2005).

This broader context sets the landscape for interpreting sustainable development and capacity building issues, which I discuss next.

2.3 Sustainable Development and Capacity Building

Sustainable development is defined in many ways depending on context. Patel (2000) says that caution needs to be exercised when exploring definitions of sustainable development as definitions and principles cannot be applied directly or uniformly in any given setting. They need to be reinterpreted to take in to account the particular development context to which they are being applied; from the various definitions, two play primary roles in the context of this study. The first and most popular one is a definition of sustainable development put forward by the Brundtland Commission in 1987, developed in preparation for the Rio Earth Summit in 1992 (World Commission on Environment and Development, 1987, p. 27):

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their needs.

In this definition, sustainable development with a current and futures vision is foregrounded and this is important in understanding capacity building issues for sustainable development practices, and the necessity of establishing learning pathways for such practices. It is important to understand sustainable development in the context of local government citizen's current needs, as well as future needs in order to give meaning and interpretation to sustainable development in the local Makana Municipality context in this case. Parallel to this motion, the International Institute for Sustainable Development (IISD) (2009) says the concept of sustainable development is rooted in systems thinking. IISD indicates that considering sustainable development from a systems perspective helps to understand the problems we face which are complex and serious – and we cannot address them in the same way we created them (ibid). This is also an important aspect of understanding capacity building and sustainable development, as it requires contemporary issues analysis within a systems vantage point, but also within a futures perspective. This perspective is further supported by literature that encourages integration on sustainable development matters. Patel (2000) sheds insight on understanding what contribution sustainable development can make in the context of South African cities and local level transformation in the post-apartheid South Africa. She articulates that “high levels of poverty and history of unequal access to resources and power in South Africa have emphasised the need to approach sustainable development in an integrated and holistic manner” (p.387).

A second definition of sustainable development relevant to this study and the South African context is provided by Sen (1998). It focuses on development and it asserts that:

...development is not primarily concerned with expanding the supply of goods and services, but more of enhancing the capacities of people... There is a need to pay specific attention to the generation and security of entitlements and their conversion into capabilities... (back cover)

This definition by way of its context directly links to development issues of freedom, resources, marginalisation and decision making powers which are critical to sustainable development.

Sen's definition further emphasises the need for a long term planning horizon, and the adoption of a development path that improves the quality of life of current generations, while leaving future generations with at least the same capacity and options for development. The combination of focus on systems perspective and development also gives emphasis on the importance of enhancing horizontal linkages and promoting coordination across sectors, in particular for recognising synergies and tensions across sectors. It recognises the importance of vertical spatial linkages, so that local, provincial, national and global development efforts and governance are mutually supportive. It furthermore emphasizes the role of partnerships between government, business, non-government and community and voluntary organisations.

In putting the above definitions together, meaning is derived within the context of local government emphasising sustainable development and capacity building, and more insight is gained into what kind of capacity building is needed for sustainable development to occur. For a sustainable local Municipality to be realised, capacity for sustainable development practices needs to be in place, and functioning well. On this point, Horan and Palmer (n.d) say "... to ensure that the municipality manages the environment in a way which moves in the direction of environmental sustainability, it is important that the Sustainable Development Framework (SDF) is implemented" (p.9). Furthermore, sustainable development and related capacity building approaches become essential to highlight and link as they are interdependent and interrelated to each other. The National Strategy And Action Plan For Sustainable Development (RSA, 2010) further adds that in terms of capacity, initiatives need to be linked to clear institutional mandates for ensuring the incorporation of sustainability principles into policies, legislation, strategies and action plans of government, including the need to ensure effective monitoring and evaluation of progress towards a sustainable future.

Reflecting a systems understanding of capacity building, the UNDP (2010) describes capacity as follows,

*Capacity is the sum of a series of **conditions, intangible factors, assets, and relationships**: all part of an organisation or a system being distributed at **multiple levels**. **Individuals** have personal abilities and attributes, or competencies that contribute to the performance of the system. Organisations*

*and larger systems have a broad range of **collective attributes**, skills, abilities, and expertise, collectively termed capabilities. Capabilities can be both **technical** (e.g. policy analysis, natural resources assessment, financial resource management) and **social-relational** (e.g. mobilising and engaging actors to collaborate towards a shared purpose **across institutional boundaries**, creating **collective meaning and identity**, managing the **tensions** between collaboration and competition). Finally, capacity refers to the overall ability of **a system** to perform and sustain itself...* (p.20: my emphasis of some system elements that will be discussed in more detail further on in the study, see section 2.5).

Makana local municipality, like all municipalities, functions within a system which is outlined by the Local Government Municipal Systems Act 32 of 2000 (RSA, 2000). The individual employees function within the various structures in the Municipality as outlined by the Local Government Municipal Structures Act of 117 of 1998 (RSA, 1998b), this involves “**capacity**”. The Act stipulates that capacity includes the administrative and financial management capacity and infrastructure that enables a municipality to collect revenue and to govern on its own initiative the local government affairs of its community. In order to contribute towards achieving these critical mandates, capacity is critical. Capacity determines ability to deliver service and further determines a sustainable city or municipal district. In achieving these mandates the Makana Municipality Preliminary Sustainable Development Framework (Makana Municipality, 2004) identified capacity building, particularly in terms of staff development, as a need to facilitate sustainability efforts.

In South Africa’s three tiered governance structure (national, provincial and local), local government is seen as a vehicle for implementing national policies. The degree to which this is possible depends on capacity at local level. Cameron (2001) articulates this by saying that this involves inter alia: the ability of local government to access national government; influence and develop relevant and related local government policies (e.g. bylaws); implement the range of local government functions as outlined by legislation; and raise their own source of revenue independently of higher tiers of government, while also having capacity to make decisions relevant to local contexts in the wider context of national policy and legislation. This presents a challenging frame for capacity building.

Local government has constitutional obligations, which makes capacity building for implementing such obligations important. It is the duty of the local municipality to

ensure that constitutional obligations are carried out. The two constitutional obligations directly related to the context of this study, are for local government to provide services to communities in a sustainable manner and promote social and economic development (Section 152, RSA, 1996). This includes giving priority to the basic needs of the community while promoting social and economic development (Section 153, RSA, 1996). The key instrument to realize this is provided for in mandatory Integrated Development Plans (IDPs) as required by the Municipal Systems Act No 32 of 2000 (RSA, 2000). These are intended to assess community needs, prioritise such needs, develop integrated frameworks and goals to meet these needs, and to formulate strategies to achieve the goals and implement programmes and projects (Department of Constitutional Development, 1997a). These obligations are further in sync with the objectives of the National Planning Commission whose primary objective is to eliminate poverty and reduce inequality (Manuel, 2012). These obligations and the effective implementation thereof, means that the Municipality at local government level requires the necessary capacity to carry out the mandated functions in the various structures and occupational contexts that carry responsibility for sustainable development.

Cameron (2001), commenting on rural local government and capacity development, states that further capacity development needs to be promoted as “the rural local government system has been unsatisfactory from a number of points of view, such as capacity of primary local government structures.” (p.106). This context is important to take into account as it relates to the local municipality of Makana (as will also be shown and discussed later in Chapters 5, 6 and 7).

Twenty years into democracy one of the major challenges in local government is implementation of national policies. Manuel (2012) explains that amongst all tasks to be performed, implementation is frequently what receives the least attention and much vigilance is required in this regard. The ability of local government to access and implement national policies brings in the issue of capacity. Capacity constraints are sometimes brought about by the bureaucratic structures and the long policy translation process that occurs from national to provincial to local government levels (Manuel, 2012). These tensions create barriers to development and implementation of sustainable development legislation, and sustainable development practices. This is clarified further by Patel (2000) when she explains

that the effective lack of capacity at all levels of government has serious implications for a transition to sustainable development.

This raises another dimension of an integrated approach to implementing sustainable development, which seems to be a key theme or issue relevant to capacity building for sustainable development, as highlighted across this section of the chapter. For more than a decade, there have been repeated calls for the design and application of an integrated approach to implement sustainable development. From the Earth Summit held in Rio de Janeiro in 1992 (UNCED, 1992) to the World Summit on Sustainable Development held in Johannesburg in 2002 (WSSD, 2002), and more recently at the Rio+20 Earth Summit, there is frequent reference to the importance of taking a *holistic and inter-sectoral approach* to implement sustainable development. However, there is “... relatively little discussion of what this approach entails or how it should be introduced” (DEAT, 2005, p.1). Mniki (2006) indicates that actually, sustainable development provides a framework for integrating development strategies and environmental policies. However, Olvitt and Hamaamba (2006) argue that “policy and legislation fall short of identifying the range of priority competences required by local government officials and environmental managers before well intended policy can be translated into effective practice” (p.121). They further suggest that part of the solution might lie in supporting the development of ‘applied competence’ amongst those employed as environmental managers and local government officials (ibid). Providing more insight into the types of competences and capacities that are needed, DEAT (2005) notes that sustainable development emphasizes:

- The need for a long-term planning horizon, and the adoption of a development path that improves the quality of life of current generations, while leaving future generations with at least the same capacity and options for development (as already mentioned above in terms of capacity building),
- The importance of enhancing ‘horizontal’ linkages and promoting coordination across sectors, and in particular for recognising synergies and tensions across sectors (also already mentioned above in terms of capacity building);

- The importance of ‘vertical’ spatial linkages so that local, provincial, national and global development efforts and governance are mutually supportive (also mentioned above in terms of capacity building); and
- The role of partnership between government, business, non-government and community and voluntary organisations (this requires capacity for partnership building and formation at local levels, providing another perspective on integration and capacity building).

This work by DEAT (2005) on clarification of sustainable development coincided with the first five years of the local government democratic system of governance as was outlined in the Municipal Systems Act of 2000 (RSA, 2000). At the time, the former Executive Mayor of the city of Johannesburg, and chairperson of the South African Local Government Association (SALGA) and president of the International Council for Local Environmental Initiatives (ICLEI) mentioned that “Integrated Development Plans (IDPs) are starting to take shape in introducing sustainable development principles. Although a lot of work is still to be done in this area, IDPs are becoming effective tools guiding delivery of service within the capacity of our environment/localities” (Masondo, 2005, p.1). In terms of the IDPs, Atkinson discussing the emergence of IDPs earlier on reported that “many municipalities completed their IDP’s during early 2002”. At the time she raised questions about capacity to implement these when she said: “The crucial question is: Will they have the capacity to implement their IDP’s? Or will IDP’s become dust-covered tomes that grace municipality’s bookshelves?” (Atkinson, 2002, p. 4).

In reviewing the state of South Africa’s environment, the South Africa Environment Outlook Report (DEAT, 2005), identified five areas of poor responses affecting implementation. The DEAT (2005) reflexively reviewing their own capacity, at the time noted:

- Our ability to manage the environment is constrained by structural and capacity problems especially at the local government level,
- Development planning in general does not adequately incorporate environmental sustainability,
- There is no concerted effort to redirect our patterns of production and consumption in a sustainable direction,

- The myriad of environmental responsibilities placed on provinces and local authorities without addressing capacity constraints is creating confusion and despair, and
- Corporate environmental responsibility remains poor.

Responding to this, South Africa's National Framework for Sustainable Development (RSA, 2008) identified five integrated priority areas for action critical to local government, which also have implications for capacity development. These include:

- Sustaining our ecosystems and using resources sustainably;
- Investing in sustainable economic development and infrastructure;
- Creating sustainable communities;
- Enhancing systems for integrated planning and implementation;
- Building capacity for sustainable development.

In 2006, when the development work on the National Framework for Sustainable Development (RSA, 2008) started, the former Minister of Environmental Affairs and Tourism emphasised the importance of local level capacity and ownership of sustainable development opportunities when he said that,

... the growing understanding of resource-scarcity amongst all communities is however, not without its own opportunities. It brings to the fore major economic and entrepreneurial gaps that remain to be filled through innovation, technological development, and improved management. It places, for many people, the importance of sustainable development at the centre of individual and community-level decision-making for the first time (Van Schalkwyk, 2006, p. 1).

As indicated above these issues have also made their way into local government policy and debate. The Local Government White Paper (1998) states that "Development at local government is committed to working with citizens and groups within the community to find sustainable ways to meet their social, economic and material needs and improve the quality of their lives". Unfortunately, according to Atkinson (2002) "... municipalities' lack of capacity has often been identified as a crucial blockage in delivery of this service" (p. 15). More locally and in the Makana Municipality itself, Hamaamba (2006) identified that capacity

building for Makana Municipality employees is one of the key deliverables for the Local Economic Development Action Plan (LEAP). Analysing competence in the Makana Municipality for environmental management and sustainable development (to inform implementation of the LEAP), he outlines a number of competences needed to give effect to this which include practical, foundational and reflexive competence.

Such issues are not only pertinent to the Makana Municipality however. Referring to one of the local government municipalities in the Eastern Cape (similar context as Makana), Mniki (2006, pp. 17-18) asserts that “... the municipality’s failure to implement sustainability principles was brought to the attention of the public in the South African media during the campaigning for general municipality elections in 2006”. Further referring to the Mail and Guardian of 21 January 2006 she adds some of the challenges include:

- *Lack of delivery of basic services by more than half of South African municipalities,*
- *Inadequate provision of sanitation to the majority of the population,*
- *Lack of maintenance of road infrastructure,*
- *Deteriorating health services,*
- *Lack of required capacity to fulfil roles and responsibilities by the municipal personnel, and*
- *Laziness, arrogance, corruption, and lack of financial management skills...* (pp. 17-18)

Challenges highlighted above and terms such as service delivery are crucial for capacity development and are considered to be abused in local government contexts. Manuel (2012) says “as South Africans we have badly abused the term “delivery” (p. 7). In addition, the importance of capacity in relation to “service delivery” is reflected in DEA (2010) where it is stated that “local government is a large-scale employer in the environmental sector, with most environmental functions being at entry level. However, intermediate and high level technical, scientific, engineering and management skills are critical for effective service delivery” (p. 9).

Building capacity does not only require addressing integration, misinterpretations of service delivery, and technical skills development as outlined in the discussion above. The issue of inspirational leadership is also important for capacity on sustainable development. Manuel (2012) emphasises that inspirational leadership is

the work of a collective and not an individual. He further demonstrates what types of leadership qualities are important and how they apply to every aspect of life. These qualities, relevant to this discussion on capacity building for sustainable development, include:

- *The ability to lead by example and follow rules that apply to everyone;*
- *Honesty, integrity and trustworthiness. Leaders are able to combine the ability to hold fast to a core set of values as enshrined in the Constitution with embracing change and agitating for transformation;*
- *The capacity to innovate, manage change, build enough support to drive an 'essential' and not a popular agenda, communicating with people, keeping them interested and informed;*
- *The ability to listen, especially to those with a different opinion, perspective and/or priorities;*
- *Ability to promote meaningful inclusion, helping overcome barriers associated with ethnicity, gender, disability and other factors of exclusion; and*
- *Providing this all-encompassing leadership that empowers people and places them at the centre of development (p. 7).*

From the above discussion, there is undoubtedly a strong need for capacity building in local government across a wide range of skills in this sector. Contextual profiling research undertaken in Makana Municipality in March 2011 (Mohanoe, 2011) identified that the development of sustainable practices under the umbrella of the environmental management unit is strategically important as a space for such capacity building initiatives, as it covers various areas in the sector of Makana Municipality. Unfortunately there are tensions and blockages which hinder progress and further development in these areas, which required further research (Mohanoe, 2011). These early contextual profile findings, however, indicated that there is lack of integrated systems, lack of support systems and lack of relevant skills for sustainable development, all of which required further probing in the context of learning pathways. Hamaamba's (2004) research in the same context showed similar findings, showing that such capacity issues are not a recent phenomenon. It is through such context that there is a need to address issues of capacity building for sustainable development within cities such as Makana. It is equally important to carry out this process in sync with the Municipality's capacity building strategy as that will form the basis of a guideline, a point I will discuss later in this chapter (see section 2.3).

As indicated in this section, capacity building and sustainable development are closely linked, and there are many facets of capacity building that need to be taken into account. One of which, not mentioned in any detail yet, is the involvement of stakeholders in sustainable development decision making and planning e.g. the community, business, and public (amongst others, depending on the local configuration of the society). Enserink and Koppenjan (2007) suggest the following in this regard:

- *The public should have a say in decisions about actions that affect their lives or livelihoods, it has a right to be informed early and to be proactively involved in a meaningful way.*
- *Participants should get all information they need to participate in a meaningful way to increase the interest and motivation to participate; including the promise that the public contribution will influence the decision;*
- *The public participation process should respect the historical, cultural, environmental, political and social backgrounds of the communities which are affected by a proposal, inclusive of less represented groups like indigenous peoples, women, children, the elderly, and poor people; and*
- *The public participation process involves participants in defining how they participate and promotes equity between actual and future generations for sustainability (Enserink & Koppenjan, 2007, p.464).*

This places additional capacity demands on local government officials, who are responsible for ensuring such public participation in sustainable development decision making at a local level. Such processes are in alignment with The White paper on Environmental Management Policy (1997, p. 41) which stipulates that:

... government must therefore establish national, provincial and local advisory structures, mechanisms and processes to foster public participation in defining environmental problems and seeking solutions. These structures will:

- *Provide for good governance*
- *Ensure that there are platforms for interested affected parties to contribute to the development policy, legislation, standards and decision making processes by expressing their views and voicing their concerns*
- *Advise and inform government*
- *Seek to achieve co-ownership for policy development (p. 41).*

As shown in this section, sustainable development and capacity building are only separate in word form, in reality they are interdependent concepts as discussed above. It is not realistic to produce new policies, structures, objectives, means of operating and new systems for sustainable development if equal attention is not given to building the capacity necessary to realize all of these in practice. Interesting

to this study is the fact that while capacity building is constantly flagged and mentioned in almost all discussions on sustainable development, the actual literature on sustainable development capacity building and how it is actually done does not match up to the interest in sustainable development capacity building (DEA, 2010). Capacity building is both a core and initiating factor in ensuring an integrated and effective system of sustainable development within local government. This lack of adequate attention to the actual practices of capacity building for sustainable development is one of the reasons that the South African Environmental Sector Skills Plan was developed in 2010 (DEA, 2010), which I now discuss in more detail.

2.4 The Environmental Sector Skills Plan for South Africa (DEA, 2010)

As mentioned briefly in Chapter 1, there has been rapid transformation of both the Environmental and Education and Training landscape since 1994. Environmental issues have been put on the transformation agenda which includes various policies to govern environmental management, as outlined above, all of which emphasise and identify the need for capacity building. However, as mentioned above, there has been a general neglect of *how to* go about such capacity development, and in 2004 Malema, Lotz-Sisitka and Olvitt first raised the issue that capacity building for sustainable development was neglected in the Sector Education and Training Authority system (DEA, 2010). This, together with further research conducted internally within DEA which showed a range of ad hoc attempts to build capacity, led to the recently produced Environmental Sector Skills Plan (ESSP) (DEA, 2010), the first of its kind. The ESSP sought to bring coherence to an important field of practice for achieving sustainable development, and developed a *systems perspective on capacity building for sustainable development* in South Africa (DEA, 2010), and argued that such an approach was needed to shift from a *reactive*, ad hoc orientation to capacity building, to a *pro-active, more systemically framed orientation to capacity building* (DEA, 2010). The ESSP also identified a number of key skills development demands in the environmental sector, all of which are particularly significant to the efficacy of service delivery in the public sector, and which also affect efficacy and developmental competitiveness of the private sector. These are:

- Leadership skills, supply and stability;

- Supply and development of scarce skills where skills gap exists;
- More strategic planning and provisioning for re-skilling and updating of capacity in key areas where critical skills needs were identified;
- Development of new skills for greening the economy, sustainable development planning and managing risk, (e.g. sustainable development planning and climate change risk assessment (new greening of skills); and
- Skills for mainstreaming environment into development (greening of existing skills); and;
- Skills to develop and expand the sector, which include Environmental Education and Training skills to ensure that there is adequate capacity to deliver environmental training to an emerging and rapidly growing sector” (DEA, 2010, p.17).

One of the demands highlighted in the DEA (2010) is leadership skills in the provinces and in local government. It also indicates that vacancies and stability in the Human Resources directorates in the local, provincial and government sector appear to have a significant impact on stability in the rest of the Human Resources and capacity development system. Scarce skills are also a problem in the local government sector, and the LGSETA for example, listed a shortage of 250 Local Authority Managers in their scarce skills list, while environmental professionals, sustainable development planners and technically skilled professionals were also in short supply (DEA, 2010). *High vacancy rates* were identified as an issue of critical causal concern (DEA, 2010). The DEA (2010) report shows too that the vacancy trends are *consistently high* (indicated in a five-year trend analysis), and that it is particularly difficult to fill these vacancies at *provincial and local government levels* (DEA, 2010).

The DEA therefore argues for a proactive approach to address the critical concern of vacancies related to scarce and critical skills¹, as they have a direct bearing on sustainable development practices. However, the DEA’s ESSP (2010), with a systems perspective, also identified that *skills planning* is paramount in addressing

¹ Scarce skills refer to an absence of suitably qualified personnel to fill an occupation (e.g. an absolute shortage of environmental engineers), while critical skills refer to a skill set that is lacking in a particular person filling an occupation (e.g. lack of sustainable development planning skills amongst managers) (DEA, 2010).

the capacity building issues identified. Hence the recommendation made by DEA (2010) that it is also necessary to *build capacity for building capacity and enabling innovation*. While the ESSP provides a much needed systems perspective on capacity development, which *includes the roles and functions of workplace skills planners in Human Resource Directorates, and skills system implementers roles and responsibilities (e.g. LGSETA)*, the recommendations made by DEA (2010) omit to explain *how to address the immediate demand and supply issues* for effective service delivery and implementation of existing and new environmental legislation. Furthermore, the DEA (2010) report identifies learning pathways as an important issue, but it fails to provide *any detailed insight into the meaning of, and mechanisms necessary to effect successful learning pathways for sustainable development*. It only produces broad perspectives on the issue. It is this problem space that this study seeks to address. This, as shown in the DEA (2010) ESSP requires an understanding of not only the sustainable development system legislation and policy context (as discussed in the previous section, section 2.3), but also a deeper and more substantive understanding of the skills development and human resources development environment affecting local governments.

The Skills Development Act (Act No 97 of 1998) (RSA 1998c) requires employees to use the workplace as an active learning environment, and requires employers to provide employees with opportunities to acquire new skills, provide opportunities for new entrants into the labour market to gain skills and work experience and employ persons who find it difficult to be employed. All of these skills system requirements are relevant to the local government sector, and employees are meant to be provided with skills development opportunities. However, the issues associated with lack of skills and lack of capacity consistently reflect a strong need for further action in this regard. In DEA (2010) it is stated that “the environment is a rapidly emerging sector, and is a cross-cutting issue” (p. 5). This statement on its own is a real reflection of the urgency for *ongoing* capacity building within Municipalities. The DEA (2010) sites ongoing changes to environmental policy making, ongoing environmental degradation, new environmental drivers (e.g. climate change), as well as the ‘newness’ of environmental management actions and practices in South Africa as drivers of this dynamically changing context. The

radical developments and changes occurring on the sustainable development landscape require even stronger integrated systems to be in place.

The identified points and challenges for capacity development outlined above bring to the fore, and demand the attention of all sectors and levels of government to work together in an integrated manner. This point and its relevance to education and training and the education and training system (key vehicles for capacity development) is underscored by Olvitt (2010) who said: “Such concerns are fundamental to all sectors of South African society. They are thus central to most education and training processes because they are both the bearers of culturally and historically situated values and the potential catalysts of ethically situated action and socio-ecological change” (p.73). Lotz-Sisitka (2012) relates such capacity building challenges to *learning*, in her report on “*Change Oriented Learning And Sustainability Practices*”. She indicates that as sustainability practices are new practices that often challenge the status quo in the workplaces and in society more broadly, they require *change oriented learning*, which in simple terms can be described as learning that leads to changes in values and practice.

To indicate the importance and need for giving attention to systemic approaches, wider education and training system as referred to, by Olvitt and Hamaamba (2006) argues for a close link between the goals of Education for Sustainable Development and the effective implementation of sustainable development as being core to the effective functioning of local government (UNESCO, 2004). For this and other systemic contextual capacity development needs, the UN Decade of Education for Sustainable Development International Implementation Scheme (UNESCO, 2005) identifies integrated, multi-levelled, horizontal and vertical forms of education, training and capacity building, which include public awareness and participation as being necessary for capacity building and sustainable development (see also section 2.3 above), as being core to the implementation of Education for Sustainable Development, within a systems vision and perspective.

2.5 Skills System and Learning Pathways

Various factors affect the skills system in the South African context. Issues such as quality of education, quality of life, and relevance play a significant role in this regard. In many cases lack of skills can be associated with the quality of education

that individuals have received prior to and in the workplace (Cooper & Walters, 2009). This is a key issue for the national skills system and has been at the core of skills system planning and the setting up of the NQF since its inception and the National Qualifications Framework Act No 67 of 2008 (RSA, 2008). To show the intense depth of the skills system issues and how they affect capacity for sustainable development, DEA (2010) explains that “these historical difficulties in the education and training system are driving a need to improve the quality of skills development in South Africa”(p. 15). However, to close this gap, it is important to understand the factors that influence learning pathways in the context of the skills development system, particularly those that are relevant to learning pathways progress in the workplace. As mentioned above in section 2.4, wider analysis has shown that the whole system of sustainable development training provision for the workplace is poorly constituted, and is re-active, rather than pro-active (DEA, 2010), which affects potential and actual learning pathways for sustainable development (as will also be shown in this study, see Chapters 4, 5 & 6).

However, to fully appreciate this issue, it is necessary to understand the meaning of learning pathways. The term ‘learning pathways’ is interpreted as a journey of learning, but in a variety of ways and it is rarely perceived as linear (Harris, Rainey & Summer, 2006). They further explain that in some instances, the notion of a learning pathway is recognised as implying a commitment to lifelong learning. The Harris et al. (ibid.) research expands notions of learning pathways and challenges the idea that the pathway analogy is a ‘deterministic notion’ with a set down trajectory. Rather the study highlighted that pathways are ‘continuous’ but should be seen as stepping stones, making the learning pathway trajectory ‘fragmented and discontinuous’ (pg. 10). Another highlighted feature of learning pathways, according to these researchers (ibid.) is that the learning pathway has direction; it leads somewhere, although where to is often not known or understood beforehand, and sometimes it changes direction. In reflecting on the complex patterns of movement observed in their research on learning pathways, the Harris et al. (ibid.) study concluded that learning pathways are not linear and seamless, but rather ‘stepping stones, zigzag or lurches’ (p. 10). The term ‘crazy paving’ was used in their research to describe a range of learning pathways from ‘erratic’ to ‘merging’,

tangential', 'parallel' and 'swirling' (Harris et al., 2006). Befitting the context of this study, however, is best explained by Lotz-Sistka and Ramsurup (2011b) that:

... learning pathways are the way we navigate and sequence our learning, skills development, education and training to attain competency towards an occupational context. These pathways are numerous, multifaceted and inherently unique to each individual. Enabling a seamless learning pathway is complex and contingent upon numerous interdependent systems, including schooling, career guidance, post-school opportunities, training opportunities, workplace learning and work experience as well as the formal system of skills provisioning ... (p. 6).

Currently, learning pathways are of interest in South Africa, in efforts to establish a more coherent and integrated education and training system for post-school education, and the issue of learning pathways is currently being debated in the recently released 'Green Paper on Post-School Education' (DHET, 2012). However, the discussion says little about individual experiences of learning pathways. The focus is more on systems provisioning.

Linking this to sustainable development, Lotz-Sisitka (2009) articulates that "sustainable development cannot occur without change-oriented workplace learning (with associated professional development) given its cross-sectoral, dynamic and multiple dimensional nature" (p. 351). This study, as shown by the goals (section 1.4), seeks to provide a careful examination of how development of individuals happens in the workplace, to understand learning pathways in key occupations related to sustainable development in a municipal / local government context as no such study has been done to date². Lotz-Sisitka states that "ongoing reflexivity is needed in seeking new and better ways responding to the complexity of the sustainable development challenge" (p. 354) and this situation requires in-depth research into learning pathways, as being discussed here, particularly since little is known about such learning pathways as reported in Chapter 1.

Professional development and learning pathways are influenced by education training systems and structures. Lotz-Sisitka (2009) notes that: "the promulgation of the South African National Qualifications Authority Act (No 58 of 1995) signalled a

² Studies have been done on workplace learning (Olvitt, 2012), competences needed (Hamaamba 2004), or on capacity gaps (DEA 2010), or on training interventions and curriculum design (Wigley, 2006) in local government sustainable development practice contexts, but none have been done on *learning pathways* in a South African ESD context to date.

new era for those concerned with professional development and training of people in the workplace” (p. 356). However, implementation of the NQF was not without problems, and by 2001 an external review was set up which resulted in a new National Qualifications Framework Act, No 67 of 2008 (RSA, 2008). The new NQF Act has created three quality councils governing education, training and skills development, which has an impact on learning pathways construction. These are the Quality Council for Trade and Occupations (QCTO), Umalusi (governing schooling and Further Education and Training), and the Council for Higher Education (CHE), as will be discussed later in this thesis (see sections 2.4 & 2.5)

The National Skills Development Strategy (NSDS III), conceived under the new NQF Act No.67 of 2008 (RSA, 2008) with particular relevance to the QCTO and workplace learning and training, seeks to encourage and actively support the integration of workplace training with theoretical learning, and to “... facilitate the journey individuals make from school, college or university, or even from periods of unemployment, to sustained employment and in-work progression” (DHET, 2011, p. 4). Viewed from the contextual vantage point of this study, the emphasis here falls on relevant and requisite skills required by individuals in key occupations within municipalities in order to realise sustainable practices. Furthermore, one of the expected outcomes of the NSDS III is to ensure that *career paths are mapped to qualifications in all sectors and sub-sectors and communicated effectively, contributing to improved relevance of training and greater mobility and progression*, reflecting a commitment to coherent and integrated learning pathways.

As argued in section 2.3 and 2.4 above, without adequate skills and insufficient knowledge, employees will not be able to achieve the goals of sustainable development as promulgated in legislation and in the Constitution of the country at municipal level. As shown, also in sections 2.3 and 2.4 above, and in accordance with a recommendation in the NSDSIII, there is thus a definite need “for much more substantial programmes that improve qualifications, support career-pathing, enable greater flexibility and mobility and increase productivity” (DHET, 2011, p. 7).

However, this issue is more nuanced than simply improving qualifications and programmes. It requires giving attention to other dynamics of the workplace, as

shown in my earlier contextual profiling research within Makana Municipality, where I identified that one of the critical issues influencing capacity development is gender disparity (Mohano, 2011). Such issues also need to be considered in learning pathways and skills system interventions, as is also noted in NSDS III, where the Department of Higher Education and Training (DHET, 2011) state that:

... attention [must be] to paid to access to skills by women, especially black women, so that they can effectively participate in society as required by our constitution. In addition, all our skills development initiatives must contain within them specific programmes and strategies to promote gender equality in skills development, in employment and career development and in our economy as a whole (p. 8).

Relevant to a discussion on learning pathways and skills system issues, is the nature of sustainable development practices and associated learning processes, as stated by Lotz-Sisitka (2010, p. 2): “A focus on sustainable development provides an interesting nexus for life-long learning as numerous work and learning practices are being re-oriented and new change oriented practices need to be learnt.” She reports on a first phase 1 of the Rhodes University / SAQA research programme [my study falls into phase 2 of this research programme] showing that an understanding change oriented workplace learning and sustainable practices in workplaces, also influences how learning pathways can / ought to be constructed. The research indicates that:

- *Change oriented learning in workplaces is complex, socio-culturally and a socio-historically situated process that involves facilitation and **emergence**. This in turn requires mobilisation of **agency in relation to existing and imagined structural constraints**.*
- *Change oriented learning in workplaces does not take place in isolated workplace activity systems. Other activity systems substantively influence the kind of, and focus of workplace learning.*
- *The type of, and nature of practice influences the kind of learning that is possible. Practice takes time to learn; not all practices can be learnt quickly; and not everything is known about the practice beforehand; therefore they can only partially be ‘taught’, and must be partially ‘learned’ through experiential encounter. Too many training programmes focus on **knowledge of imagined practice**, rather than **knowledge in practice**. (Mukute, 2010; Mukute & Lotz-Sisitka, 2009); and few training programmes take full account of the socio-cultural antecedents of practice (Mukute, 2010; Masara, 2010; Olivitt, Lotz-Sisitka & Chetty, 2010). (Lotz-Sisitka, 2010, pg. 2, emphasis original; all references included here are in the Lotz-Sisitka 2010 paper).*

To support the above important findings, Illeris (2011) affirms that:

... when considering learning possibilities at work it is, first of all, very important to remember that work-related learning increasingly takes place not only in the physical workplace, but also, for example, on courses, in networks and exchange schemes, in contact with customers, users and suppliers and trade unions, in industrial organisations, and in more private work-related contexts.... [and] ... fundamentally, workplace learning takes place in the encounter between the learning environment of the workplace and the worker 'and employees' learning potentials (p. 29).

Thus, from this it is possible to see that learning pathways relevant to the workplace are *intimately linked* to workplace practices, and the learning thereof. But how do the wider systems of skills development respond to such issues? Lotz-Sisitka and Raven (2009) explain that:

...Following the demise of apartheid rule in South Africa in 1994, the new government adopted the South African Qualifications Act (RSA, 1995a) which established the South African Qualifications Authority (SAQA). The SAQA was tasked with the responsibility for developing and implementing a national qualifications framework (NQF) based on principles of quality, equity and redress. In addition to this mandate and amongst other responsibilities SAQA has had a responsibility to design and develop qualifications that respond to the environmental rights and sustainable development clauses of the Constitution and associated national policies (p. 309)...

Muller (2002), also emphasizing the qualifications structuring role of the NQF states, but also its intention to provide for flexible and articulated learning pathway access, states that:

... the purpose of the National Qualifications Framework is to make it possible for all candidates to achieve national qualifications through a wide variety of mechanisms and multiple delivery systems. The framework will generate coherence across the traditional divides of education and training, and allow articulation between currently fragmented and divided sectors and institutions. It will provide access to, and progression through, recognised qualifications for all learners to transfer credit across different modes of study and qualifications within the national framework (pg. 96).

From the above, it is clear that the assumptions made are that the NQF should both provide relevant qualifications, and also promote access and maximise progress or enable flexible and meaningful learning pathways. Problems with the

implementation of the NQF, however, led to a shift from attempts to integrate all aspects of the South African education and training system, to a comprehensively linked NQF that accommodates at least three distinct sub frameworks (the QCTO, Umalusi and CHE as mentioned above), though with clear articulation routes between each which are yet to be fully established. Keevy (2007) notes that the trades and occupations sub-framework as a learning pathway of choice for individuals has to be strengthened in order to address the issue of skills needs and gaps.

Morrow (2007, p. 7) notes that “it has become common place in South Africa to talk about “skills gap”, but we need to unpack what that means”. He reflects that when referring to “skills gap” one may be referring to a collective or an individual “gap” (cited in Lotz-Sisitka and Ramsurup, 2011a). As noted by Morrow (ibid.), these are different from each other, and consequently remedies for them would call for different measures. This study focuses particularly on tracing individual “gaps” which are unique and different from each other through learning pathways, particularly for key occupations related to sustainable development within the local Municipality given the need for addressing skills gaps in the public environment sector as indicated above (DEA, 2010). It does not elevate the study of individual learning pathways to analysis of collective skills gaps (which are already identified in the DEA 2010 study). Significant to this study too, is a recent statement by Mukora (2009) which notes that “one of the challenges facing SAQA, in its research, is the establishment of clear pathways that link the three sub-frameworks, though it is not clear how this should be done” (p. 28).

Lotz-Sisitka and Ramsarup (2011b) also identified that there is relatively little research on those who don’t reach university; or those whose learning pathways hardly exist; or are virtually absent; an issue which is of interest in South Africa. This is of interest to this study as it incorporates learning pathways of individual workers who have hardly had access to education and whose formal education and training learning pathways are thus virtually absent (see Chapter 4). As argued by Lotz-Sisitka and Ramsurup (ibid.), the critical realist notion of absence thus becomes significant in the context of learning pathways research. To explain this further, they draw on Bhaskar who states that ‘absence’ is a term given central place in dialectical critical realism, for dialectic involves, at its most complete, ‘the

absenting of constraints on the *absenting of absence*, or ills' (Bhaskar, 1998, p. 396, emphasis added). In the context of this study, this could mean for example, the *absenting* of a missing training programme on sustainable development. Price (2012) refers to this phenomenon as that which is absented. Critical realism will be discussed in detail in Chapter 3, as it helps to consider the absences, silences, hidden positions and structural discourses echoing through individual accounts (Oliver, 2011) particularly as this relates to the construction (or not) of learning pathways.

The study does not only seek to understand learning pathways within the skills system environment as noted above, it also seeks to build on skills system research and recommendations that have already been made in the context of Makana Municipality specifically. As such, this study builds on the Makana Municipality Environmental Education and Training Strategy released in 2005 as a key outcome of the Makana Environmental Action Plan, which drew on the Hamaamba (2004) study. Authors of the Strategy (Lotz-Sistka, Hamaamba, Kachilonda, Zondane, Kula, Olvitt & Timmermans, 2005) explain:

...The Environmental Education and Training Strategy is further developed in such a way that it strengthens the capability of municipal employees (management and workers) and members of the community to enable improved implementation of South Africa's environmental, education and local government policies. It thus takes account of competencies that are likely to be required by South Africa's citizens as they respond to local government issues and risks and the challenges of sustainable development in local context (p. 32)...

As mentioned, this Strategy was partly based on Hamaamba's (2004) research on competences for sustainable development in local government context, Makana Municipality specifically. Another study also shaping insight into education, training and learning pathways for sustainable development in Makana Municipality is a study by Wigley (2006), who investigated workplace-based learning contexts to inform curriculum development. The findings of these studies provide contextually specific insight into some of the issues which need to be researched in more depth, namely qualifications which enable learning processes to take place and learning pathways that allow for progression (vertical and horizontal) in occupational learning, and as such I found them useful for furthering the aims of this study.

This section has considered the relationships that exist between learning pathways and the skills development system, and has raised a number of dynamics associated with this relationship, including the way the system is structured, the presence of an NQF, how sustainability practices and workplace learning influences learning pathways construction, and how absence might be an important category to include in the analysis of learning pathways in the context of skills development systems. The Association for the Development of Education in Africa (ADEA, 2008, p. 88) reiterates the importance of considering skills system structuring in learning pathways research. They state that: “the overall umbrella of the National Qualifications Frameworks (NQF) has become important, as they provide the basis for validation and articulation across systems.” As indicated in my research questions (Chapter 1), through this study I will investigate articulation and access issues in selected learning pathways to consider their location within and across the sub-frameworks of the NQF. These will cover amongst others: What the issues are for crossing from one area to the other? What the blockages are? What tensions are there? What enabling factors are there, allowing learning pathways for key occupations? As mentioned above, I will give particular attention to individual experiences in key occupations and their views and experiences of learning pathways, and to the mechanisms that shape learning pathways, and systems that are in place relevant to skills development to facilitate learning pathways for these occupations.

2.6 Theoretical Bases and the NQF as a ‘Differentiated’ System

For the purposes of this study, two theories seemed eminently suited for the task of analyzing learning pathways as outlined above, and in the research goals. They are Critical Realism and Systems Theory. No attempt will be made to appraise these two theories in their entirety, as this would be the work of a substantive PhD or more. Only certain relevant applications of key aspects from these vast bodies of theoretical work will be focused on in relation to learning pathways.

Critical realism (after Bhaskar, 2002) allowed for an investigation of learning pathways through an ontologically differentiated perspective allowing for ontological depth. Critical realism (also referred to as basic critical realism³)

³ This represents the first phase of critical realism; dialectical critical realism (mentioned earlier) represents the second phase of critical realism (Bhaskar, 1998, Bhaskar, 2002). Basic critical realism emphasises the

differentiates between three ontological ‘levels’: the real, the actual and the empirical (Bhaskar, 2002), as shown in Table 2.1 below:

Table 2.1. Ontological differentiation (Bhaskar, 2002)

Domain of Real	Domain of Actual	Domain of Empirical
Mechanisms Events Experiences	Events Experiences	Experiences

This firstly allowed me to examine learning pathways experiences at the empirical level. Here I focused mainly on the individual’s experiences and views of their learning pathways (see Chapter 4). Secondly, I was able to examine the events that shaped and influenced the activities and experiences of the research respondents and their learning pathways (see Chapter 5). Thirdly, I was able to probe the underlying mechanisms and structures that shaped the events and experiences of those individuals employed in the three occupations, to understand the real situation (see Chapter 6). This allowed for a fuller understanding of learning pathways, as said by Bhaskar (2002), “Critical realism already understands reality as structured and differentiated, as in process and changing, as a totality or whole and as containing human, potentially self-conscious, transformative agency” (p. 9).

In studying the real, I analysed data retroductively to identify mechanisms and structures which were deep-seated and that shaped or carved out the learning pathways (see section 3.3.1 where I discuss analysis in more depth). As reported by other critical realist researchers such as Price (2007) such mechanisms include for example, power relations, history, experiences, culture of gender relations, marginalisation, and legislation and so on. As indicated in the literature review above, it could also include structural mechanisms such as workplace learning systems and infrastructure and the newly established and ‘differentiated’ sub-framework structure of the NQF itself (into the three quality councils). It should be

importance of depth ontology while dialectical critical realism emphasises this same ontology, but goes further to identify absences as basis for transformative praxis (future actions) that respond to the realities that exist in order to facilitate emancipatory action and change.

noted here that the NQF is not differentiated (hence my use of ‘differentiated’) i.e. it is one framework (or one system), but it has sub-frameworks (or subsystems) that differ in some respects, while also cohering in others.

It is for this reason that I drew on systems theory to examine how the local government (Makana Municipality) works and functions as a system with specific reference to system elements that influence learning pathways in the key occupations under investigation. As mentioned already in section 2.3 and 2.4 there is a need to give attention to *integration* in sustainable development capacity building, and also in learning pathways research. In support of systems in local government, Knowles (1980) explains that “the advent of systems theory was a major development in the field since it took the total organisation as the unit of analysis and brought into focus the interaction between the subsystems within the organisation” (p.8). It should be noted here that critical realism is also based on systems thinking, but prefers to work with open systems thinking which recognizes that experience and change is emergent from generative mechanisms at the level of the real.

The two theories, critical realism and systems theory provide useful theoretical support in dealing with the complexities related to learning pathways. McAuley, Duberly and Johnson (2007) explain that theoretical linkages help us “in trying to understand and explain the social and natural phenomena that surround us in our attempts at making decisions about what to do in particular circumstances, nobody escapes making or assuming...theoretical linkages” (p. 10). The theoretical framework was selected because of the relevance to the object of study, as can be seen in Chapters 4, 5, and 6.

“Systems thinking is an epistemology, or a way of viewing systems from a broad perspective including seeing interrelationships between components of the system and their relationship to the broader environment” (Togo, 2009, p. 85). From critical realist perspective, systems thinking encourages analysis of how interacting factors shape emergence of experiences, and in this case particular learning pathways (or not). Some of the key components that I have focused on that are related to systems and learning pathways in this study cover: What opportunities for learning pathways developments exist in the organisations? What new possibilities exist? What

tensions exist? What enablers exist? What absences exist? What needs to be done to resolve tensions or increase mobility or flexibility of the system? The NQF objective of an integrated system, speaks directly to these questions. Parker and Walters (2009) state that the NQF aims:

...to create an integrated national framework for learning achievements; facilitate access to and mobility and progression within education, training and career paths; enhance the quality of education and relevance and of understanding better different forms and sites of learning (p.188)...

These are issues that the research goals seek to address as outlined in the research goals: (a) To investigate learning pathways for three key occupational categories (key managerial; key supervisory occupations; and key workers occupations) relevant to sustainable development, and how these are shaped and experienced (b) to identify system and structural factors influencing articulation and access issues relevant to progress in learning pathways relevant to the key occupations. The NQF also encourages one to see it as the most appropriate bridge to life-long learning which is relevant and significant for the type of change oriented workplace learning that sustainable development appears to require, as discussed in section 2.5 above.

It is important to understand that individuals are part of a system with interrelationships that shape their own role or work they do within their working environments. As Morgan (2005) states:

...Participants miss - and in many cases mischaracterize - many of the key relationships that shape events. Operational staff ends up distrusting senior managers. Politicians become wary of bureaucrats. Field officers remain suspicious of headquarters. They do not fully understand the crucial role of relationships in systems performance... (p.16).

Morgan (ibid.) further indicates that in particular, system thinking focuses on processes, patterns and relationships. This is important to consider as this research study will focus on these issues in relation to managers, supervisors and workers in key occupations within municipalities and how this has a bearing on sustainable development and capacity. I for example, found during my participation in the training needs analysis research (part of the contextual profiling for this study) that the above situation sketched by Morgan (ibid.) was evident in the Makana municipality context (Mohanoe 2011), as there was such evidence of relational tensions and misunderstandings. Kira, Eijnatten and Balkin (2010) concur with the

above and mention that: “sustainable work ability is promoted when work is perceived in a systematic manner, and its purpose, elements, and interactions with the work of others, and eventual organisation outcomes, are broadly recognized” (cited in Senge, 1990). Comprehension of work and an ability to continuously make sense of work in relation to other system elements and factors also enable the individual to impact positively on the surrounding world (Starik & Rands, 1995) and thus contribute to the development of social, ecological, and economic resources and practices (Kira et al., 2010, p. 620). For this study this may mean for example, that a manager could make sense of and recognize the value of undertaking a short course on sustainable development as part of his or her learning pathway, which contributes to sustainable development practice implementation.

“A systems view suggests that essential quality of a part resides in its relationship to the whole, the system and its parts should be designed from the perspective of the whole system and in view of its embeddedness in its environment, and requires both coordination and integration” (Magolis, n.d, p.1). This implies that all systems within an organisation must be in sync. A synergy of individual employees whether manager or operational worker, mechanisms, structures and systems within Municipalities is critical in order to realise sustainable development in local government contexts. A lack of integrated systems is an area that stood out in the earlier contextual profiling research that I undertook (Mohanoe, 2011). It seemed from the contextual profiling that there is a lack of integrated systems in Makana Municipality, and this needs to be addressed, especially in the context of the learning systems and policies that enable individuals to learn and work effectively. The concept of a whole-person approach to educating for sustainability is also relevant for establishing quality purposes within a system. Podger, Mustakova-Possardt and Reid (2010), explore this concept in detail in their article. They reveal that “when a person can relate to their own sense of identity – from moral, to work-oriented - to broad issues and responsibility, they manifest a will to learn” (p. 348).

However, it is also to understand how systems form, maintain and/or change their structures and functioning, as this also sheds light on some aspects of learning pathways that may be available or not to those involved in sustainable development (Lotz-Sistika & Ramsurup, 2011a). From this perspective, one can draw on Luhmann’s (1982) systems theory which focuses on processes of differentiation

which he describes as the “replication, within a system of the difference between a system and its environment” (p. 230). This he says means that in a differentiated system (such as a municipality with different sections, or an NQF with different subsystems) there are two kinds of environments: one common to all subsystems and a different *internal environment* for each subsystem (Ritzer & Goodman, 2004). This formation of these system environments, and the ‘cross overs’ between them, involve dealing with changes in the environment.

For a study on learning pathways, it is also important to understand that in relation to the concept of differentiation is the concept of articulation. Hall (1985) defines articulation as:

...By the term, ‘articulation’, I mean a connection or link which is not necessarily given in all cases, as a law or fact of life, but which requires particular conditions of existence to appear at all, which has to be positively sustained by specific processes, which is not ‘eternal’ but has constantly to be renewed, which can under some circumstances disappear or be overthrown, leading to the linkages being dissolved and new connections-re-articulations-being forged. It is also important that an articulation between different practices does not mean that they become identical or that one is dissolved into the other. However, once an articulation is made, the two practices can function together as ‘distinctions within a unity’... (pp. 113-4).

The definition above is an attempt to highlight the complexity of articulation, and its relationship to differentiation. Articulation is a core concept in learning pathways, as the very notion of learning pathways appears to require a system that allows for articulation. However, articulation is often over-simplified, **as it ignores boundary making factors and boundary crossing processes**, as can often be found to be in the context of the South African National Framework (NQF) where articulation often refers to the links that exist between qualifications and types of qualifications leading to a particular kind of learning pathway. It is important, however, to understand articulation in contextual, situational and educational terms and to understand the factors that are associated with the dynamics of enabling or constraining articulation or which lead to a ‘breakdown’ in articulation attempts, or to non-articulation or an absence of articulation in certain cases.

Blom (2012) argues that,

...on the face of it, articulation simply refers to enabling mobility of learners in order to progress along learning and career pathways. While such mobility could certainly be considered to be the outcome of articulation, the term does not provide a sense of the work, the deliberate effort, which has to take place prior to achieving an articulated system... (p. 2).

Hall's definition cited above, suggests that different forms of knowledge and learning are important to consider in how they influence articulation and access to learning on learning pathways. Blom (2012), in discussing articulation, states that when different forms of knowledge or learning are complementary, a continuum of learning is possible. She notes that in the education system, articulation follows a structured learning pathway from General Education and Training to Further Education and Training (governed by Umalusi) to Higher Education (governed by CHE) to the Workplace (governed by QCTO), following a route from education to practice. She notes that articulation can also follow an in-and-out of practice route, and it can also follow a disciplinary boundary route, following subject formation from high school (governed by Umalusi) through to higher education (governed by CHE). She notes that articulation can also follow a systems approach, where systemic integration and coherence between learning pathway routes can be sought (e.g. from higher education to professional training or vice versa).

In South Africa, the National Qualifications Framework (NQF) is the policy instrument that holds responsibility for formal learning pathways development via qualifications. According to the National Qualifications Framework Act (RSA, 2008), the NQF is a comprehensive system approved by the Minister for the classification, registration, publication and articulation of quality-assured national qualifications. As mentioned in section 2.5 above, the NQF has three sub-frameworks and these are recognised as 'differentiated' subsystems, within a whole system. These include: (a) General and Further Education and Training guided by the GENFETQA Act (RSA, 2008) (b) Higher Education, guided by the Higher Education Act (RSA, 2008); and (c) Trades and Occupations, guided by the Skills Development Act (RSA, 2008).

The underlying rationale according to the NQF System Consultative Document (DET & DEL, 2003) is that it would open up learning and career pathways for all

South Africans, whatever their previous formal education, training or work experience. The concept of **differentiation** in this study therefore becomes more significant in developing an understanding of what occurs at the boundary of a system and its environment. This is supported by Guile (2011) on learning at the boundary referring to researchers who explored how to overcome boundaries between educational institutions and workplaces to facilitate more effective school-to-work transitions (Toumi-Grohn & Engeström, 2003). Their research reveals how boundaries can inhibit learning in settings that had been the object of investigation for some considerable time, for example, teacher education (Edward et al., 2010). This implies that as learning pathways are central to this study, focusing on distinctions and forms of boundary crossing taking place is also an important facet of understanding learning pathways.

Lotz-Sisitka and Ramsurup (2011a) further explain that differentiation occurs within each system through system replication; systems differentiate internally along the same path that they use to differentiate externally. Thus a subsystem such as the QCTO system and its subsystems (such as SETAs) are likely to function through subsystems of replication. Differentiation through ever-refined subsystems of replication, according to Luhmann (1992) becomes a reflexive and recursive form of system building. For this research this was a useful concept to examine as to how different learning pathways were structured, enabled or constrained in and through such recursive forms of system replication (see Chapter 6).

Frank (n.d, p. 108) commenting on articulation says the idea in British cultural studies of 'articulation' is an additional powerful tool at the critical realist's disposal that can be used in connection with analysing culture. He further says culture is seen as a multi-faceted concept that can mean many very different things, depending on the context. Lotz-Sisitka and Ramsurup (2011a) add that researching articulation and learning pathways in the South African NQF context requires a careful analysis of what would form the most defensible unit of analysis within such research; and also that understanding learning pathways or articulation issues requires an understanding of differentiation and border crossing from a systems theory perspective; but that there is also a need to understand the mechanisms that create boundaries between systems and their environment. Strengthening this area of articulation and learning pathways is thus important. On this point, The Green Paper

for Post-School Education and Training comments that the National Skills Development Strategy III (NSDS III) calls for even greater synergy between post-school education providers, and better alignment between the education system and the labour market (DHET, 2012, p. 80).

From the above, it is clear that learning pathways research can be enhanced through recourse to theoretical vantage points provided by critical realism and systems theory, both of which I draw on in this study.

2.7 Occupationally Directed Training

As indicated in Chapter 1, and in section 2.2 above, this study takes place in the context of Makana Municipality. Its interest is to probe the construction of learning pathways for workers, supervisors and managers in their occupational context, and from the vantage point of their occupational practices. Hence, professional development in the workplace is important. In order for sustainable practices to be realised in the workplace, occupationally directed training is essential. Vaughan (2008) explains that “workplace learning has a broader project and potential to link development of the individual with development of the organization or business, through an emphasis on sustained development and learning processes as well as learning outcomes” (p. 1). It is equally essential that training provided be of quality, and that such training is available both in the formal education streams (CHE and Umalusi governed) and in the occupationally directed stream, governed by the QCTO. It is also of great importance that training is structured properly, and that occupations are understood and interpreted properly, that training programmes improve occupational learning, and that change oriented learning in workplaces occurs (DET & DEL, 2003). It is the systems of work and learning, skills development, learning pathways, all integrated and synchronized, which will eventually lead to substantive capacity development for sustainable development related occupations in the context of local government. All these have significance in exploring the challenges associated with occupationally directed learning and learning pathways.

The NSDS III (DHET, 2011) serves as a source of direction for occupations directly related to sustainable development. It speaks to the relevance of education and training institutions to occupationally related training and mentions a type of

programme called Professional, Vocational, Technical and Academic (PIVOTAL) programmes. These are programmes which provide a full occupationally-directed qualification. The challenge here, as commented on in the Green Paper for Post-School Education and Training, is that “with their present capacity, colleges can neither absorb significantly larger numbers of students nor achieve acceptable levels of throughput. General vocational programmes have not had time to mature and to be tested in the labour market” (DHET, 2012, p10). The Green Paper further comments that vocational programmes have not yet been sufficiently updated and improved although the Department has now started a process to do this (ibid.). The green paper also acknowledges that there are many problems related to curriculum and qualifications available. These may be issues contributing to the influence of articulation and access to learning pathways in the workplace for occupationally directed learning. On this point, the NSDS III seeks to ensure a closer synergy between the work that individuals do and the formal education system which is linked to the CHE. They say “programmes that contribute towards the revitalisation of vocational education and training, including the competence of lecturers and trainers to provide work-relevant education and training, and promote occupationally directed research and innovation” are needed (DHET, 2011, p.10). Individuals in key occupations need lifelong learning which is change oriented. Scott and Vare (2007) on sustainable development, learning and change explain these principles as ESD1 and ESD2. They say: “we see ESD1 as the promotion of informed, skilled behaviours and ways of thinking, useful in the short-term where the need is clearly identified and agreed, and ESD2 as building capacity to think critically about what experts say and to test ideas, exploring the dilemmas and contradictions inherent in sustainable living.” (Scott & Vare, 2007, p. 191). The inherent dilemmas in the South African context are explained by the DHET (2011) as follows:

...South Africa's pool of intermediate skills, especially artisanal skills, is too low to support national and sector development and growth. The workforce is not keeping up with the skills needed to remain competitive in an increasingly knowledge-based economy. There is a need to ensure continuous upgrade of skills in the workforce, to help ensure a measurable increase in the intermediate skills pool, especially in artisan, technician and related occupations, attributable to increased capacity at education and training institutions and increased workplace experiential learning opportunities... (p. 13).

An added challenge which is often overlooked or not understood at the depth necessary is the issue of lack of literacy amongst those in the workforce (especially those at elementary occupation level). During the skills needs analysis conducted in 2011 at Makana Municipality, Mohanoe noted in the interview discussions with the workers that literacy is a general challenge for the workers (Wigley & Sisitka, 2011). Some have very little schooling experience and others hardly any at all (ibid.). This “skills gap” needs to be addressed as a foundation even before occupationally related training can happen, as has been the intention with adult basic education and training programmes (ABET) implemented by the government, and by various SETAs. However, as much still needs to be done in this regard, the issue of adult education is identified as an ongoing priority in the most recent Green Paper. The Green Paper mentions that in 2011, only 312 077 students were enrolled in public adult education centres; comparable to the enrolments of FET colleges. The throughput rate, however, is much lower as very few adults in ABET training acquire the full General Education and Training Certificate (GETC); most collect only a few unit standard based certificates. This means there is almost no progression to further learning (DHET, 2012, p.11). The NQF Act (RSA, 2008) outlines that the advancement and recognition of learning is an essential attribute of a free and democratic nation and a prerequisite for the development and well-being of its citizens. On an insightful paper which clarifies this issue more, Lotz-Sisitka (2011) comments that change oriented workplace learning processes across the sectors and knowledge fields of the National Qualifications Framework (NQF) are necessary for implementing sustainable development practices in South Africa.

However, access to appropriate professional qualifications, particularly occupationally directed qualifications related to sustainable development is a challenge (DEA, 2010). The DEA (2010) study for example, identified that while Environmental Practices Qualifications existed on the NQF, there was no implementation of these by 2010 due to a range of system-based factors. Access as defined by NSDS III is “availability of places in relevant programmes; on the other hand, it relates to the constraints (social, academic, geographical and financial) facing the majority of disadvantaged university applicants” (DHET,2011,p.14). This definition seems limited to the CHE and Umalusi system, and can be explored

more, particularly in relation to systems, structures and mechanisms in the workplace, or the QCTO system. Garcia (2006) provides a perspective on why this might be important to do when he says that “The value generated by each citizen’s (working and learning) participation, incorporated into the city’s system is critical to the city’s construction of its value capitals” (p. 104). The world of work is becoming more complex and uncertain as old categories and rapid change make it harder to predict occupational futures and very specific skills needs, and as said by Vaughan (2008) “Everyone needs the capacity to adapt, change, and innovate” (p. 3), an issue which sustainable development shows up as it shows that society as a whole needs to be engaged in a ‘learning curve’ or ‘ongoing learning process’ oriented towards sustainability (Scott & Gough, 2004; Lotz-Sisitka, 2011).

2.8 Training Needs Analysis

As sustainable development issues are new in society as a whole, and because they affect all sectors of society, all sectors of the workforce related to sustainable development require professional training which is key to their occupations (DEA, 2010, Lotz-Sisitka 2011). As explained above, it is important to have occupationally related training opportunities available to respond to this ever-increasing demand, but as ongoing research into the NQF and its provisioning systems is showing (DEA, 2010) the challenges related to *how* to do this, are considerable. The reality of the situation is that “Local governments need to consider the requirements of sustainable development within their planning frameworks, but employees may have little sense of how they can do this while they are trying to deliver on their core functions” (Rosenburg, n.d, p. 4). To address such problems, the Wildlife and Environment Society of South Africa (WESSA) undertook a skills needs analysis, which included the Makana Municipality, to understand *how* professional training can be designed for occupational needs in local government (which I helped to research). The intention was that a skills needs analysis must inform the development of a programme to use the Environmental Practices qualifications which were in existence, but not being used. Additionally, the programme had to be accredited by the relevant Sector Education Training Authority (SETA) namely, the Local Government SETA (LG SETA). This was to contribute to earlier priorities of the LG SETA, who in 2000, undertook to focus on four specific areas. These include:

- Financial viability
- Community-based participation
- Leadership and management, and
- Adult based education and training (ABET) which is undoubtedly the fundamental area of priority.

As identified in the needs analysis by Wigley and Sisitka (2011) from the above four leadership and management and ABET remain fundamental for the purpose of sustainable development training needs for employees in the workplace, particularly in the Municipality in Makana. The LG SETA (2000) stated that ABET is what defines employees' abilities to access the range of opportunities that Further Education and Training (FET) offer. ABET also enables adults to follow career paths at a later stage in life, using opportunities that were not open to them previously. This can help to form a learning pathway for them either within the same sector or workplace. It is also through the needs analysis that a direction for a relevant qualification can be derived (ibid).

In order to fully address issues of skills needs for sustainable development to realise sustainable development in local government contexts, and in Makana Municipality, Hamaamba (2004) under social aspects of education and training within Makana Municipality, gives examples of competences needed which can be used as part of developing skills needs analysis. Amongst these, one directly relates to sustainable development within cities and has been already highlighted and articulated in previous discussions above. Hamaamba says it is important to “involve the community in projects and decision making, and strengthen interdepartmental communication which improves environmental management (practical competence)” (p.96). Minki (2006) affirms this point and adds that “evidence from the study revealed that Buffalo City Municipality went to great lengths in its attempts to involve its residents in the affairs of the Municipality” (p.39). Skills needs analysis that includes aspects such as how employees interact with the communities they work with, and how they address and handle their problems are important to consider in this study as they play a part in influencing learning pathways as will be shown later in the study (see Chapter 4).

In 2004 Hamaamba undertook a small-scale analysis of education and training needs in the Makana Municipality. The purpose was to investigate the education and training needs of municipal employees to inform the Environmental Education and Training Strategy. Four profiles were established which included: “a profile of environmental issues in the Makana Municipality, a profile of organisational needs, a learner profile and a profile of community perceptions of local environmental management issues” (Olvitt & Hamaamba, 2006, pp. 130-131). Out of these four profiles, Hamaamba reported that there was a need for improved environmental management capacity in the Makana Municipality. The study concluded that consideration needs to be given to how education and training can build and support improved management capacities within the municipality and also strengthen community interactions and relationships (Hamaamba, 2004, Olvitt & Hamaamba, 2006, p. 131).

WESSA’s needs analysis proposed a focus on the following issues relevant to understanding education and training needs in local government (Wigley & Sisitka, 2011):

- *What NQF level is the most appropriate (there are Environmental Practices qualifications registered from level 1-4).*
- *Is a full qualification or part qualification (skills programme) most needed?*
- *Will municipalities take up this training – i.e does it meet a skills need that is recognised by municipalities?*
- *What categories of workers would enrol if this qualification is developed? (In this case to ensure sustainable practices)*
- *Develop a detailed occupational analysis of the potential learner’s daily work contexts to better understand their workplace learning needs?*
- *What structure or system will best serve the delivery of learning?*
- *What education and training materials will be required for this and how to design these to best meet the learners needs and levels? (Wigley & Sisitka, 2011, p. 4).*

The outcomes of the findings from the skills needs analysis have since informed an Environmental Practices Skills Programme qualification related to sustainable development for municipalities. These include (a) Municipality Workers (NQF Level 2) and (b) Supervisors & Managers (NQF Level 5). These were piloted in the provinces of KwaZulu Natal and Mpumalanga, starting March 2012 and lessons learned are currently being compiled (WESSA , 2012).

One of the challenges in addressing the skills needs analysis in the area of sustainable development is that the LG SETA provides a format of the Workplace Skills Plan (WSP) which does not cater for this category. This goes back to the issues discussed above on Environmental Sector Skills as identified in the DEA (2010) study:

...The current format provided for the Workplace Skills Plan does not cater for a cross-disciplinary approach to meeting environment and sustainability skills needs in all areas of activity, for example, Waste Management, Roads, Land Management, etc. Ideally a 14th Skills Area needs to be added to the 13 already provided for and this would be “Environment and Sustainable Development Skills”... (Wigley & Sisitka, 2011, p.11)...

As mentioned earlier, this study will build on these earlier needs analyses conducted by Hamaamba (2004) and later Wigley and Sisitka (2011), by focusing in more depth on key occupations and learning pathways issues associated with sustainable development.

Since this study looks at three categories; namely, workers, supervisors and managers in the Municipality in key occupations related to Sustainable Development, it is of essence that it is carefully understood how these individual's learning pathways are articulated in these categories. For example under these categories are different departments all related to sustainable development? These include Environmental Management, Environmental Management & Recreation, Local Economic Development, Water and Sewage and Environmental Health and Solid Waste Management Services. Sustainable development training needs ought to be understood in all of these categories, as they pertain to occupations.

The issues raised above challenge Parker and Walters (2009), who say that “all South African qualifications are included on the NQF, both those that were developed prior to the NQF (historical qualifications), and those developed through SAQA's standard setting structures (new qualifications)”, as it would seem that some qualifications may still be missing from the NQF (i.e. those related to sustainable development) (2009, p.178). This is likely to cause absences in the learning pathways of key occupations, an issue that will be investigated in this study (see Chapter 6). The Association for the Development of Education in Africa (2008)

provides further motivation for this research, and its location in an understanding of what the contextual needs are for education, training and lifelong learning, as will be investigated in this learning pathways research:

...Within the wider context of lifelong learning, more effective articulation within integrated system enables parallel and second-chance pathways to emerge that disadvantaged learners can use to move through quality education provisions from basic education through upper secondary education into higher education. The vision is that, eventually, all learners should be able to access and move through all levels (and all forms) of the education system when they want, where they want and how they want... (p. 80).

Drawing on the expertise of the Greenforce Initiative Assistance, two points which are important and relate to the above statement emphasise:

- *Engaging employers and connecting workforce development programmes more strongly to their needs.*
- *Identifying and implementing promising and best practices in designing career pathways and supporting advancement (Mwase & Keniry, 2011, p. 24).*

As shown in the DEA (2010) research mentioned above in section 2.3, and the needs analyses referred to above, in order to support further capacity development in sustainable development for Municipalities, more programmes on education and training in response to such training needs analyses are necessary. An example of such programmes is the Supporting Urban Sustainability (SUS). This kind of a programme potentially play a significant role in ensuring a contribution towards capacity building in the field of Education for Sustainable development. Individual employees such as managers in key occupations, for example Local Economic Development managers who participate in such a kind of programme can in return contribute towards their own career development, thus strengthening potential learning pathways towards sustainable development in their sector and department. As already mentioned above, participation in the SUS programme assisted me to interpret the research question - What learning pathways exist for key occupations relevant to sustainable development in Makana Municipality, and how these are shaped and experienced? For example, the SUS programme coordinators indicate that because social-ecological systems are complex there is a need to focus on collaborative learning amongst stakeholders, which is also important for sustainable development practice in municipalities. Interestingly, this was not identified clearly in any of the training needs analyses previously undertaken. The SUS programme

notes that the term collaborative learning encompasses the process of co-creation of knowledge among stakeholders, which provides insight into the history of, and the means to transform, a situation. (Hellquist, 2011, p. 1). From the perspective of this research, one may therefore ask a question on how learning pathways can be constructed that allow for such collaborative learning? It is in this way that the participation in this programme enabled me to ‘read more’ into the data generated in this study, as can be seen in Chapters 4, 5 and 6.

2.8. Conclusion

The review of the literature presented in this chapter helped identify some of the important factors that need attention if one is to understand learning pathways of key occupations in local government context related to sustainable development. It indicated some of the challenges and complexities arising from the historical context as explained in the discussion, as well as some of the more useful theoretical perspectives that can assist in interpreting learning pathways. Most importantly, the review of literature helped to identify the six core categories that are essential for interpreting learning pathways of key occupations in local government context related to sustainable development. There is a link between the six core categories identified in this chapter and the ten analytical statements discussed in Chapter 7. In the next chapter I discuss the research methodology.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

The purpose of this chapter is to present the choice of research design and an overview of how the research was conducted. It discusses the research design and the data collecting tools that enabled me to investigate the research question: What learning pathways exist for key occupations relevant to sustainable development in Makana Municipality, and how these are shaped and experienced? This is then followed by a discussion on how the data analysis was undertaken, and includes a report on how ethical standards were maintained, and how quality considerations were addressed.

3.2 Research Design and Methodologies

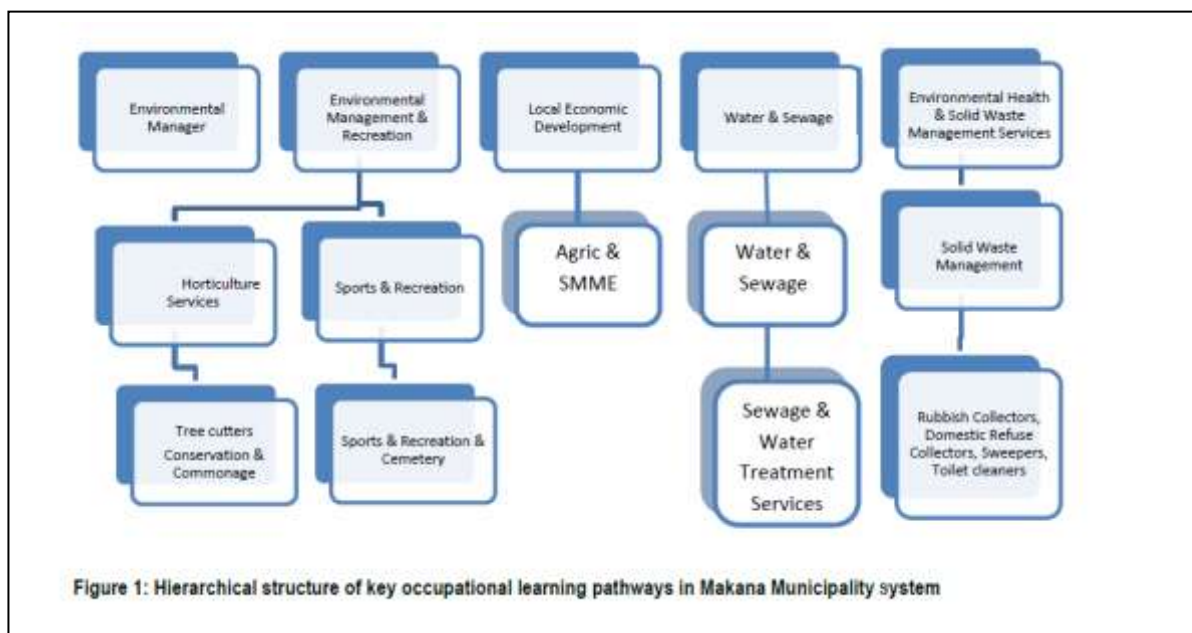
3.2.1 Case study research

This research is constituted as a case study of learning pathways for three occupational categories relevant to sustainable development in the Makana Municipality; namely, workers, supervisors and managers. Case study research is a useful approach for working with contextually specific data, and for working with a critical realist interpretation of such data, as it allows a researcher to provide intrinsic, in-depth insight into a social phenomenon. Flyvberg (2011) states that choosing to do a case study is not so much a methodological choice, but rather a choice about what to study (the bounded unit represented by the case). Flyvberg (2011) states further that case studies may be studied in varied ways using a range of different methods or even methodology (e.g. qualitatively, quantitatively, hermeneutically, or by mixed methods); the researcher has to make decisions as to what types of data are most useful for informing and/or studying a case. This research primarily uses qualitative research techniques, including observations, interviews and document analysis (discussed below).

3.2.2 A four phase research design

The research design involved four distinct phases:

- 1) **A background analysis phase** involving document reviews and analysis. This involved reviewing documents related to sustainable development and to education and training in local government context. These included Local Government Competency Profiles for key occupations; Local Government skills development reports; local government strategic policies; such as the Makana Environmental Education and Training Strategy, and the new NQF subsystems policy documents were analysed in this phase.
- 2) **Fieldwork phase 1:** This phase involved document analysis to identify issues relevant to learning pathways in the local government sector (e.g. LG SETA Skills Needs Analysis, and Makana Municipality Training policy); and documents relevant to local government occupations in the three categories identified above (e.g. job descriptions, training programmes, certificates and CV's). A first round of interviews with individuals employed in key occupations relevant to sustainable development was held, guided by the hierarchy of occupations outlined in Figure 1 below.



Observations of sustainable development issues and practices in local government workplaces were also undertaken, and were linked to the occupations. The observations and interviews were in accordance with the principles of qualitative theory as outlined by Flick, Kardorff and Steinke (2004) which required me to also

pay attention to my own performance as I conducted the interviews and the impact of my presence on the situations encountered in the working environments.

3) **Fieldwork phase 2:** This phase involved member checking of data produced in phase 1 fieldwork interviews and observations, and also involved ongoing document analysis of relevant documents, with an emphasis on systems factors influencing learning pathways. It also involved a second round of interviews with the individuals employed in the key occupational categories. These rounds of member checking were structured and conducted in sequence focusing on one key occupational category at a time; namely, workers, supervisors and managers. This approach followed is as encouraged by Flick et al. (2004) that researchers are encouraged to develop their own appropriate mode of approach for practical research.

4) **Fieldwork and Analysis Phase:** This involved further data generation on systems and structural elements, member checking of phase 2 data and interpretations, and analysis of the data using critical realist and systems theory perspectives (see section 3.2.3 below). This involved two ‘layers’ of analysis, as explained in section 3.2.3 below.

3.2.3 An iterative, theoretically informed approach to data generation and analysis

As can be seen from the outline of the four phased research design, this research design required an iterative approach to data generation and analysis. However, to deepen the analysis, and to deepen ontological and systems perspectives of the data, the analysis also had to be theoretically informed (see section 2.5 where I argued for the value of such perspectives in understanding and interpreting learning pathways).

I therefore conducted *three layers of analysis*. Layer 1 (Chapter 4) analysis focused on experiences (Bhaskar’s first ontological layer) and involved analysis of issues such as experiences of system factors, tensions, access, quality and mobility/progression; as well as decision making of the individuals concerned about their learning pathways. Layer 2 (Chapter 5) analysis focused on events (Bhaskar’s second ontological layer), such as training events, available training opportunities, workplace skills planning, mentoring and sustainable development projects, while

Layer 3 (Chapter 6) focused on identifying mechanisms and structural factors that influence and shape learning pathways (Bhaskar's third ontological layer).

As such, Bhaskar's basic critical realism provided a differentiated ontological framework for analysis of phenomena and how they come to be the way they are (Bhaskar, 2002; see Table 3.1 below).

Table 3.1. Ontological differentiation (Bhaskar, 2002)

Domain of Real	Domain of Actual	Domain of Empirical
Mechanisms		
Events	Events	Experiences
Experiences	Experiences	
Examples drawn from categories of workers, supervisors and managers		

As Bhaskar (2002, p. 9) states: "Critical realism already understands reality as structured and differentiated, as in process and changing, as a totality or whole and as containing human, potentially self-conscious, transformative agency". In studying the real, I analysed data retroductively to identify mechanisms and structures which were deep-seated and that shaped or carved learning pathways. Such mechanisms included issues of power relations, history, experiences, culture of gender relations, legislation marginalisation, workplace learning systems and infrastructure and the differentiated structure of the NQF itself, and the causes thereof. Sayer (2000) further summarises this critical point and says:

... the nature of the real objects present at a given time constrains and enables what can happen but does not pre-determine what will happen. Realist ontology therefore makes it possible to understand how we could be or become many things which currently we are not: the unemployed could become employed, the ignorant could become knowledgeable, and so on (p. 12).

I also drew on systems theory to examine how the organisation (Makana Municipality) works and functions as a system with specific reference to system

elements that influence learning pathways in the key occupations under investigation. This provided further insight into empirical experiences and events that occur in the domains of the actual and the empirical (see Table 3.1 above). “The advent of systems theory was a major development in the field since it took the total organisation as the unit of analysis and brought into focus the interaction between the subsystems within the organisation” (Knowles, 1980, p. 8; see also section 2.5 where I discuss the usefulness of systems theory for interpreting learning pathways).

Working with critical realism and systems theory together reflected what MacAuley et al. (2007, p. 10) say about working with theory in research: “In trying to understand and explain the social and natural phenomena that surround us in our attempts at making decisions about what to do in particular circumstances, nobody escapes making or assuming... theoretical linkages”. Critical realism and systems theory have been used before to understand environmental education problems, and Togo (2009) argues that critical realism provides an underpinning philosophy for social theory in this case systems theory (Togo, 2009). She states: “Systems thinking is an epistemology or a way of viewing systems from a broad perspective including seeing interrelationships between components of the system and their relationship to the broader environment” while “critical realism provides an in-depth ontology” (Togo, 2009, p. 85).

Systems theory, as applied to this study, allowed for investigation of how the mission and vision of the organisation influenced and underpinned the functions and goals of the Municipality, and how this shaped learning pathways in the workplace. The managers within the organisation form part of the system within the Municipality and drive its mission and vision. They also ensure that strategies and policies are in place, managed and implemented accordingly. It was therefore important to focus on the leadership structures (managers) within the bigger system, and to consider relevant capacity and systems structures which exist at this level for enabling sustainable development learning pathways of the bigger workforce. Within systems, there are structures within which individuals in various occupations are employed for sustainable development purposes. These structures determine how departments function, and the way these functions influence the efficacy of the system as a whole. How the system functions is determined by whether this is “closed” or “open”, whether the system is accessible or blocked, and whether it is

hierarchically or horizontally organised (as shown in figure 1). Ritzer and Goodman (2004, p. 401) comment on differentiated structures within a wider system, when they say:

...As in the life-world, rationalisation at the system level involves progressive differentiation and greater complexity. These structures also grow more self-reliant. As they grow in power, they exercise more power and more steering capacity over the life-world. They come to have less and less to do with the process of achieving consensus, and in fact, limit the occurrence of process in the life-world...

This statement was significant to analysing learning pathways as it had already been noted that there were structural issues in the Makana Municipality that were influencing integration; and which could have been impeding ‘processes’ such as learning pathways development (Mohano, 2011). As mentioned in section 2.4, learning pathways are also influenced by education, training systems and structures. In relation to this aspect Bhaskar and Lawson (1998, p. 5) note that:

... the intelligibility of experiments presupposes that reality is constituted not only by experiences and the course of actual events, but also by structures, powers, mechanisms and tendencies – by aspects of reality that underpin, generate or facilitate the actual phenomena that we may (or may not) experience, but are typically out of phase with them...

Related to the above aspect in uncovering structure, Sayer (1992) suggests a number of simple but basic questions which were relevant to this study. These covered, “What does the existence of this object (in this form) presuppose? Can it exist on its own as such? If not what else must be present? What is it about the object that causes it to do such and such?” (p. 91). These were helpful to guide the analysis presented in Chapter 6.

Luhmann, a well known social systems theorist (mentioned in section 2.5), states that the central paradigm of recent systems theory is “system and environment” (1995, p. 176). The environment within which the workers, supervisors and managers function on a day to day basis was important to consider as they are part of a bigger system. I therefore sought to identify environmental factors influencing learning pathways such as lack of support, poor service delivery, poor working conditions or unsustainable practices influencing the system, and how the system was adapting to it by for example, introducing and supporting sustainable development learning pathways. The environmental analysis also included

regulations, and processes to be followed. Through this analytical perspective I was able to investigate and understand the relationship between the environment and the employee's learning pathways. Luhmann narrows this point to the fact that "there are systems that have the ability to establish relations within themselves, and to differentiate these relations from relations with their environment" (Luhmann, 1995, p. 13; see also section 2.5). By this he means that systems can also exclude new and important environmental factors (such as the need to give attention to sustainable development practices). I therefore also kept an analytical eye on this issue i.e. what was being excluded and/or what was absent (as mentioned in Chapter 2, absence is an important category in dialectical critical realism, especially for identifying possibilities for transformative praxis). Lotz-Sisitka and Ramsurup (2011b) suggest that this is a useful category for analysis in learning pathways research.

These theoretical vantage points also helped to keep the iterative approach to data generation and analysis 'alive' throughout the study. Careful in-depth review of the various documents and repeated data collection was continuously used throughout the research process to ensure increased depth of data and analysis. As mentioned above, interviews were conducted with the same people twice, in order to gather data that builds in depth, and so that more insight could be gained from each individual interviewed.

Ongoing analysis took place, to deepen interpretations of what was going on in the data. Gay et al. (2006, p. 471) state that "One of the most frequent data analysis activities undertaken by qualitative researchers is coding, the process of categorically marking and referencing units of text (e.g. words, sentences, paragraphs, and questions) with codes and labels as a way to indicate patterns and meaning", reflecting an *inductive* approach to analysis. I used this approach to identify aspects that seemed significant to learning pathways of workers, supervisors and managers. I found that some aspects were similar, but some were different (as can be seen in Chapter 4), and I found this kind of analysis most useful in interpretation of *experiences* (layer 1 analysis), and for addressing research goal 1. After the data was analysed in this way, it was verified with each individual interviewed for truthfulness and trustworthiness through two member checking processes. Where gaps were identified, further verification was sought from the persons concerned.

Further in-depth analysis took place using *abductive* and *retroductive* modes of inference to address the second research goal, which focuses on issues of articulation, access, and systems factors. An *abductive* mode of inference was used to interpret / recontextualise the data using systems thinking and some aspects of critical realism (e.g. identifying absences or exclusions, as well as for differentiating between empirical experiences, events, and mechanisms and structures as explained above). A *retroductive* mode of inference was used to interpret how structures and mechanisms are shaping learning pathways. Danermark, Ekström, Jakobsen and Karlsson (2002) explain that *induction* involves “drawing conclusions from a number of repeated observations”; or “seeing similarities in a number of observations”; while *abductive* analysis involves “interpreting and recontextualising individual phenomena within a conceptual framework or set of ideas”. *Retroductive* analysis on the other hand, involves reconstructing the basic conditions “for phenomena to be what they are” (p. 80)

The research was qualitative, and was influenced by the hierarchical structural design of workers’, supervisors’ and managers’ occupational categories (see Figure 3.1 above); which assisted in understanding the given situations regarding learning pathways related to sustainable development in Makana Municipality.

3.3 Data Collection: Further detail

As indicated in the research design section above, the main data generating tools applied for the purpose of this study were semi-structured interviews, document analysis and focus groups. For the purposes of obtaining thick and rich data, three levels of the organisational structure were examined.

3.3.1 Semi-structured interviews:

It should be noted that through my involvement in the skills needs analysis research in 2011 for the Environmental Practices training within Makana Municipality, officials from LG SETA, and WESSA were granted permission and access to do the research (Wigley & Sisitka, 2011). It was therefore not difficult to request and obtain permission to do this research, although the difference in purpose between this research and the WESSA research was made clear. As I was involved in the earlier needs analysis research with WESSA researchers, and as I was also

participating in the SUS programme, I was already familiar with some of the municipal staff which helped with gaining access.

Careful planning and scheduling was considered as some of the individuals were busier than others and were not easily accessible. A letter was written and sent out to Makana Municipality and to the various Heads of Department and to the individuals I was to interview in order to request permission for the interviews, and to outline the process to be followed (See Appendix B). An interview schedule was prepared using the advice of Ruane (2006) who suggests that “the schedule typically contains the introductory comments to be made by the interviewer, a list of exact questions (and response options) to be presented (in order and verbatim) in the interview, a list of the authorised probes and follow-ups for any open-ended question” (p. 154).

Careful identification and selection of who to interview was important to this study, as I had to find out who was involved in sustainable development in the Municipality before I could identify the appropriate research participants. Five individual managers, five individual supervisors and nine workers (interviewed in a focus group format) were selected from a broad range of units with responsibility for sustainable development within Makana Municipality. These individuals were in various key occupations which included: Environmental Management, Environmental Management and Recreation, Local Economic Development, Water and Sewerage, Environmental Health and Solid Waste Management Services. These individuals were also interviewed because of their expertise in their respective disciplines as these have a direct bearing on sustainable development. The questions used for the interviews were first pilot tested before the actual interviews took place to ensure appropriateness (See Appendix A).

For deepening of analysis of the interviews, the individual interviews were transcribed (See Appendix C). I transcribed all nineteen (19) tape recordings of the semi-structured interviews with careful attention to detail both from the questions I asked and related responses. All 19 interviews recorded for the interviews have been saved from audio tape to digital format on a personal computer. The careful attention to detail recorded was particularly important empirically as the responses articulated their experiences shaping learning pathways. I used the detail of the

transcribed interviews, to compile what I called ‘career stories’ which helped to translate the interview data into a coherent account of the empirical experience of learning pathways (See Appendix C, and Chapter 4). The career stories were helpful in understanding the relationship between career and work, since the focus of the study is learning pathways (career) in the workplace context (work). As people experience things and tell stories about their career experiences they also construct their personal realities and biographies (Patton & MacMahon, 2006), and it is through these constructions of reality that we are able to see patterns and relationships between wholes and parts. For the worker focus group, a purposeful random sampling of nine workers involved in sustainable practices was selected in order to arrive at insight into their individualised learning pathways (they were coded WA1-WA9).

Career stories enabled me to explain why individuals make the choices they make and the meaning that guides these choices and decisions (experiences in the domain of the real). Cohen and Mallon (2001), in substantiating the rich value of stories to career research highlight four key related benefits:

- Sequencing provides a chronicle of events
- Reveals the inconsistencies and contradictions
- Provides perspective sense reflecting on the past and investigating past events with meaning that resonate with the present
- Enables insight into how individuals view their relationship to social structures

They also add that stories enable the researcher to build a ‘rich, complex, multifaceted and integrated picture’ from the perspective of situated individuals.

From the individual career stories reported out of the data generated from the nine workers, and the five supervisors and five managers, I was able to apply inductive analysis to develop a set of analytical categories, so that I could reflect more critically on the experiences of learning pathways (as reported on in Chapter 4). “The determination of the analytical categories begins with an intense and repeated reading of material” (Flick et al., 2004, p. 254). In this study, an intense and repeated reading of the individual career stories was undertaken, which led to the defining of analytic categories which included:

- 1) Introduction of the person and their early education and history
- 2) Learning pathway decisions and experiences related to sustainable development practices
- 3) Issues/interesting aspects/complexities related to their learning pathways and sustainable practices

These analytic categories were consequently used to further code the data as it was iteratively generated. In coding the material a process as suggested by Flick et al. (2004) was followed which involved: classifying the career stories according to the above analytic categories. From the assessed and classified categories, sub-categories and relevant sources of data were derived for interpretation. Consequently, indexing and analytic memos (See Appendix E) were derived from this process, in order to present data in Chapters 4 and 5.

3.3.2 Document analysis

All questions for the interviews were derived after the initial phase of document reviews and analysis. The documents included: Local Government Competency Profiles for Key Occupations; local government skills development reports; local government strategy; and the new NQF subsystems policy documents (see Appendix F).

The document analysis was undertaken in a systematic manner. The documents were first reviewed as a source and foundation for mapping out directions for the research. This was followed by document analysis focusing on learning pathways related to issues in Makana Municipality specifically. Here, documents such as Makana Municipality Environmental Education Strategy, the Makana Municipality Skills Development plan, the Makana Municipality Training and Development Strategy, Training Policy, Environmental Education and Training Skills Needs Analysis, and Workplace Skills Plan were key documents to analyse. Evidence of individual training programmes attended, individual CV's, letters of employment, conditions of employment, qualifications, seminar papers and summit documents related to the theme of discussion were also reviewed (see Appendix J).

The full list of documents reviewed (with their index codes) is contained in Table 3.3 below.

Table 3.2 List of documents reviewed

Index code	Document Reviewed
Doc-01	Makana Municipality Environmental Education and Training strategy (February 2005)
Doc-02	Work Place Skills Development Plan (2011/12)
Doc-03	Environmental Education and Training Needs Analysis (July 2011)
Doc-04	Makana Municipality Training Policy (July 2003)
Doc-05	Environmental Sector Skills Plan for South Africa (June 2010)
Doc-06	National Qualifications Framework System (July 2003)
Doc-07	Policy Document on Adult basic Education (No Date)
Doc-08	General Education and Training Certificate (GETC) (October 2001)
Doc-09	Crazy paving or stepping stones. Learning pathways within and between vocational education and training and higher education. (2006)

Careful in-depth review of the documents was continuous throughout the study. These documents were selected for their ability to provide data on learning pathways related to the key occupations and sustainable development in Makana Municipality, as well as for their ability to provide insight into systems elements and events that influence learning pathways.

3.3.3 Focus group interviews:

Nine focus groups were interviewed. Each focus group differed in number varying from a minimum number of five individuals to a maximum of twenty-five individuals. The focus group interviews were conducted during the process of the

skills needs analysis of the Municipality in which I participated. Focus group interviews were conducted with a focus group of workers in order to bring out a wide range of responses. This was useful as these groups had been working together for some time and were aware of what others were saying in the group. Members of the focus groups were drawn from occupations within departments which are related to environment and sustainable development. These include Environmental Management and Recreation Services, Water and Sewerage and Environmental Health and Solid Waste Management Services departments. For each department, a group from each sub-section was selected by the fellow-workers to represent them, according to their willingness to participate. On the aspect of willingness to participate, Cohen, Manion and Morrison explain this as voluntarism, and that “voluntarism entails applying the principle of informed consent and thus ensuring that participants freely choose to take part (or not) in the research and guarantees that exposure to risks is undertaken knowingly and voluntarily” (Cohen et al., 2007, p. 52).

Careful scheduling of interviews was considered as availability of workers depended on the supervisors’ schedule and time. For the workers, the experts suggest that when “face-to-face individual interviews might be intimidating for some groups, group interviews can be used” (Cohen et al., 2007, p. 97). Time was of the essence as the groups worked on various sites with varying distances from each other around the city. Allowing an equal amount of time and equal opportunity for questions asked in each group was also taken into account. The groups were interviewed in their working environments and sites. The value of informal observations during interviews with the workers on their sites was useful in linking what they do and what they wanted to know and learn. It was also useful in analysing the interactions that took place between the workers themselves, and between the workers and their supervisors and managers (working relationships). Gathering data through informal observation allowed me to extend the data, as recommended by Flick et al. (2004) who suggest that in focus groups, one can identify any open expressions of feelings (e.g. frustrations on ineffective skills development plan) and monitor visually the role of a person (e.g. a dominant male voice in the workers’ focus groups).

3.4 Validity, Ethics and Trustworthiness

Triangulation is an important principle in qualitative research. Flick et al. (2004) explain it as referring to “the use of a variety of methods in one project (including those drawn from quantitative research) with a view to exploring the research question from different angles” (p. 243). In this study triangulation was planned from the onset of the research in relation to the research question, hence I used a variety of methods as explained above. I compared the data and insights emerging from the different data sources, maintaining a data trail so that it would be possible to refer back to the original source of data from the written account. To ensure trustworthiness, I produced a thick description of the data as case study research requires thick and detailed descriptions of the case under study (Cohen et al., 2007).

“Ethical considerations play a role in all research studies. Therefore, all researchers must be aware of and attend to the ethical considerations related to their studies” (Gay et al., 2006, p. 73). Bassey (1999) explains that researchers in democratic societies can expect certain freedoms: freedom to give and receive information and the freedom to publish research findings, but this should be done within ethically sound approaches. Before the study commenced, a letter introducing myself and a letter of consent requesting permission to conduct the research was sent to the Municipality, all the Heads of Departments and the Managers concerned (see Appendix A & B). All of them responded and granted me permission to go ahead with the interviews, including dates of their availability. Data collection only commenced after permission was granted. The freedom of the individuals interviewed was respected. They were informed before the interviews of their freedom to give or withhold information, or to withdraw from the interview. All interviews were recorded with prior consent.

Participants’ wishes whether to reveal their names or not was also taken into consideration. As explained previously, the outcomes of this research will form part of a series of seven papers on learning pathways being produced in a SAQA / Rhodes University research partnership. For this kind of research study, it is important that the research findings be published carefully, for the benefit of the Environmental Education Sector, SAQA, Makana Municipality, Rhodes University and future research. The research unit of analysis is the learning pathway related to the occupation, which to some extent decentres the focus of reporting from the

learning pathway of the individual per se. The focus is also on issues relevant to learning pathways associated with the occupational category, and issues relevant to skills development and associated articulation and access issues. In this way I was able to report on findings from the data without personalizing the data.

Bassey (1999) argues that case study research should also show respect for truth. In this study, I have sought respect for truth in the manner in which I collected, analysed and finally represented the data. A carefully managed process was followed for data analysis, covering: Indexing, coding, transcribing and/or translating, clustering and synthesis, production of an inventory of data collected. The way in which the data was presented also sought to respect the truth, as I used “thick description” of the data in the final report which Janse Van Rensburg (1999) notes is important for establishing credibility of the account (See Appendix D).

All participants were asked to sign an ethical statement indicating acceptance to be involved in the entire process of the interviews, member checking and verification of data. The nature of this research is such that new knowledge may be produced since this is a new landscape. Responsibility on how the knowledge was acquired was recognised. “Responsibility for knowledge production, requires that researchers attempt to: recognise and balance subjectivity; give accurate research accounts; act within the law; and develop the required expertise” (O’Leary, 2004, p. 50).

Ongoing member checking was carried out by taking interpretations back to the individuals interviewed. The interpretations were presented in the form of career stories which the individuals signed off after verification (Appendix H). Qualitative researchers are not concerned solely or even primarily with providing a valid description of the physical objects, events and behaviours in the settings they study; they are also concerned with what these objects, events and behaviours mean to the people engaged in and with them (Maxwell, 1992). The individuals involved in the study were asked to respond to the questions as accurately and honestly as possible, providing unique accounts and reasons for their learning pathways decisions in their respective key occupations which are meaningful to them. Ary et al. (2006) argue further that:

...To enhance reliability or trustworthiness, the researcher wants to demonstrate that the methods used are reproducible and consistent, that the

approach and procedures used were appropriate for content and can be documented, and that external evidence can be used to test conclusions (p. 509)...

Cohen and Manion explain ‘*humaneness*’ as a principle requiring that consideration be shown to the feelings and sensitivities of those in the research context (2000, p. 377). Given the context of the work that some of the workers within the Municipality do, such as toilet cleaners, sweepers, rubbish collectors etc, humanness and respect was important in this regard.

Cultural and language considerations were also observed as I undertook this research. As a female, coming from a different tribe, and not being Umu Xhosa, it was important for me to assume great respect in this regard. It was important for me to seek assistance from the supervisors’ of the workers concerned where language became a communication barrier for certain issues to be clarified even before commencing with the interviews. I took into cognisance the fact that most workers operated almost entirely in their own mother tongue, IsiXhosa. It was also important for me to acquire the services of a local Xhosa person to assist in transcribing the information recorded where necessary, to ensure that all data was captured correctly and reliably. It was thus important for verification to be undertaken for content and interpretive validity in this process.

Flick et al. (2004) point out the fact that one of the aims of qualitative research is to allow the individuals to tell their own stories. Through the process of interviewing individuals it was important to ensure that the experiences were not fractured in the process of converting them to career stories. It was through the ongoing processes of member checking that the individuals were able to confirm that I, as the researcher, heard them correctly and interpreted the experiences in the career stories correctly. This was a very important process which took quite some time.

3.5 Reflections on the Methods Used

Continuous document reviews and document analysis required a considerable amount of time. It was my responsibility as a researcher to know the research landscape before conducting this study. Thorough reading and understanding of concepts which were relatively new since this is a new area of study for me, and continuous knowledge management was necessary. Also, since this area of study is

associated with changes (e.g. changes in environmental thinking, changes in the NQF landscape), it required that I stay up to date with knowledge developments as they unfolded. Managing changing knowledge was important for this process.

Piloting of questions before the official interviews also proved to be most valuable. This was done with colleagues at the Environmental Learning Research Centre (ELRC) at Rhodes University. This process assisted in guiding, focusing and structuring the interviews related to my research question. The workers and supervisors were asked exactly the same questions (see Appendix A) and the managers a different set of questions (see Appendix A) to match their occupational categories.

In retrospect and reflecting on the process of data gathering, I learnt valuable lessons on flexibility, time management, scheduling and group dynamics regarding interviews. Firstly, it was not easy securing appointments with employees. Depending on how busy their schedules were, their availability differed from one department to another and from one category to the next. At some stage while conducting interviews with workers, there was a prolonged Municipal strike by the workers which delayed the process. I also found that the more senior the individuals in category, the more difficult it was securing an appointment owing to their busy schedules. I therefore had to be flexible as cancellations or postponements came through. Consistent follow-ups played a major role in ensuring that the dates secured were still valid. In one instance the e-mail messages sent were completely ignored only to find that the entire Municipality was experiencing a technical challenge. The messages had to be re-sent, followed by personal visits to the individuals concerned to acknowledge receipt. Fortunately the Municipality, my research study site, is within walking distance from Rhodes University and this made it possible for me to accomplish this with ease. One of the Managers interviewed was a new appointee in his occupation, and this implied that even though he was from within the Municipality I had to orientate him first to the process of the research I had been busy with from the previous year, with the workers and supervisors, to bring him on board.

During the process of recording the interviews there were several disruptions in certain offices. For example, someone knocking at the door and coming into the

office seeking a signature unaware of the recording. All this happened while the audio recording was on. To avoid too many cuts I let the recording continue running. In retrospect, this informed and allowed me to conduct rich informal observations (working relationships, and interactions). I recorded my reflective observations in my research journal. Keeping a systematic and dated account of research activities and issues as they arose helped me to remember important detail which I might have otherwise not recalled in the process. Certain interviews had either to be cut short and continued another time as the officials got called to unplanned meetings within the Municipality, this always meant rescheduling. In certain cases, rescheduling required the exercise of patience on my side, flexibility, and perseverance. Owing to some of the unforeseen disruptions the process of data gathering thus overlapped from 2011 to 2012. Workers and certain supervisors were interviewed in 2011 while the remaining supervisors and managers were interviewed in 2012.

Secondly, interviewing focus groups was rather challenging as this brought about group dynamic issues. Some individuals (mostly men) dominated the interviews and wanted to politicise the questions asked instead of answering the real questions. The purpose of the focus group interviews had to be reiterated. Some individuals were shy to answer questions owing to insecurities, uncertainty and cultural biasness about the process even though they were fully briefed before commencing with the interviews. Some reluctance on the part of the workers was experienced in answering questions as they expressed that they had previously been through many interviews from various sources and nothing happened afterwards. This process was associated with the skills development planning forms which the workers mentioned they filled in year in year out, with nothing coming of it.

Thirdly, the process of transcribing the interviews was time consuming especially considering the number of employees I had to interview (nine focus groups, five supervisors and five managers). Some of the managers had a lot to say, in certain cases taking ten pages of transcribing per person.

The process of ongoing member checking, collecting of documents and the second phase of interviews was also challenging, as experienced in the original round. At some stage this process happened during the month of May, coinciding with exam

time and leave time for some supervisors and managers as they study part time. They were either on leave or writing exams and this became a delaying factor in the process. This challenged me to be even more flexible with my schedule.

3.6 A Critical Review of the Research

3.6.1 Benefits

The officials' willingness to participate throughout the process of the research despite their hectic schedules made it possible to complete this study on schedule. The participants trust and access to personal documents such as CV's and certificates formed the fibre of the richness of this study. This allowed for a richly textured study in which I was able to provide 'thick descriptions' of the case under study.

3.6.2 Limitations

The length of the study period did not allow for ongoing discussions related to the findings as reported in Chapter 7. However, it is hoped that the Rhodes University Environmental Learning Research Centre will be able to work with these in future in their ongoing interactions with the Municipality. The scope of the case study which focused on the employees of one municipality restricts generalisability. This was dealt with by the critical realist possibility of developing generalisation at the level of the mechanisms (Sayer, 2002).

3.7 Conclusion

In this chapter I discussed how the research orientation influenced the choice of methods used in this particular study. I discussed the research design, methodology, data gathering methods and analysis in detail. I have also outlined ethical issues considered in the study. This study has been a valuable and considerable process of learning, studying, and gathering insightful knowledge and in-depth understanding of social phenomenon in order to synthesise the data for the purpose of this study. The various factors and perspectives raised in systems theory and critical realism have provided the necessary support in dealing with the complexities encountered in understanding learning pathways of key occupations relevant to sustainable development. The next chapters, which include Chapters 4,5 and 6 will deal with

the data analysis in three layers in detail, employing the two theories discussed in this chapter.

CHAPTER 4

DATA PRESENTATION – LAYER 1 – EMPIRICAL EXPERIENCES OF LEARNING PATHWAYS

4.1 Introduction

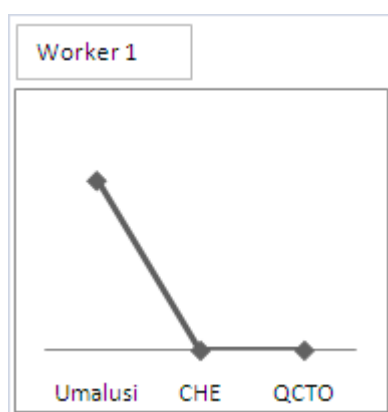
In this chapter, I present findings of learning pathways investigated in key occupations of three categories related to sustainable development. These categories include workers (section 4.2), supervisors (section 4.3) and managers (section 4.4), in this sequence.

Firstly, I begin by introducing the individual persons and their early educational history which is also graphically displayed. Secondly, I discuss their learning pathway decisions and experiences related to sustainable practices. Thirdly, I indicate issues, interesting aspects and/or complexities related to their learning pathways and sustainable practices. These reflect the categories and subcategories used for analysis (applied per individual), followed by in-depth discussions incorporating strategic and policy document analysis.

4.2 The Workers' Stories

4.2.1 Worker 1 (WA1)

4.2.1.1 Introduction of the person and their early education history



WA1 is a black male toilet cleaner in the Health Department of Makana Municipality. He has been employed here for forty years. He completed his schooling at Standard 8. He and the only female colleague in the group are almost at pension/retirement age.

The diagram of WA1's learning pathways shows his highest qualification (Std 8) under Umalusi. No further training or learning opportunities have been provided neither in CHE nor QCTO.

4.2.1.2 Learning pathway decisions and experiences related to the sustainable practices

Experiences of systems factors: WA1's limited educational history including his expressed lack of interest in new learning appears to affect his learning pathway experience.

Quality, access and tensions: WA1's limited educational history is reflective of the quality of education received in his early years of schooling. This reflects an experience of lack of access to quality education showing a shape of a hardly existing learning pathway. There is tension in how the system factors are experienced owing to the low level of education.

4.2.1.3 Issues / interesting aspects / complexities related to sustainable development practices and learning pathways

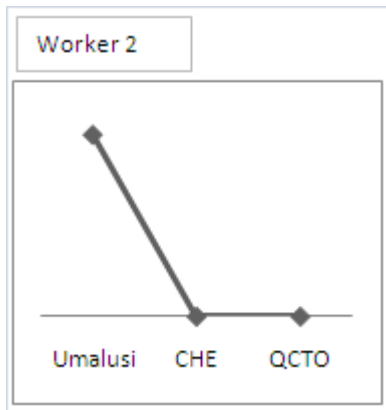
Tensions: The importance of the job for WA1 seems to be highly considered mainly for family support and not necessarily for contributing towards sustainable development practices.

Mobility/progression: The lack of education appears to create a blockage in terms of progression and mobility on the individual's learning pathway. The retirement age is also an apparent contributory factor affecting own mobility/progression.

Quality: Poor working conditions in which the individual works shows an impact on the quality of work output related to sustainable development practices. The quality of education also seems to affect the quality of work output. Quality of education, quality of working conditions, and quality of life indicate an overlap influencing learning pathways in the case of WA1.

4.2.2 Worker 2 (WA2)

4.2.2.1 Introduction of the person and their early education history



WA2 is a black male sweeper in Makana Municipality. He completed schooling at Standard 8. He has been with the Municipality for eleven years. He started as a casual worker and now a permanent employee. There is, however, no mention of for how long he was appointed as a casual worker.

WA2's learning pathway diagram shows his highest qualification at Standard 8 under Umalusi. It shows that there is no qualification either at higher education level (CHE) or in his workplace (QCTO).

4.2.2.2 Learning pathway decisions and experiences related to sustainable development practices

Mobility/progression: The movement by WA2 from casual to permanent worker does not lead to mobility or progression on his learning pathway. There is no transition but rather a shift in work status. As a casual worker he did not qualify for work benefits such as access to leave and the number of days thereof.

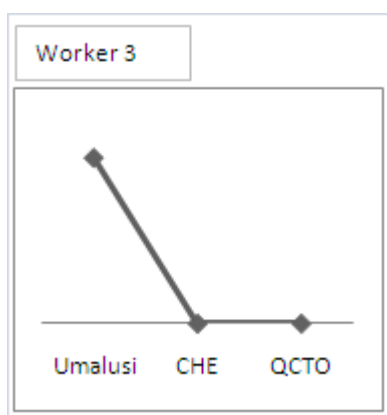
Experiences of systems factors: There is not much experience regarding system factors since there is hardly any learning pathway for WA2. The minimal experience and no training provided related to his work, appears to contribute towards creating a blockage in the system. WA2 also displays a lack of interest in learning, as evidenced by "sweeping in the streets, really what is there to learn". This reflects a personally imposed constraint on learning pathway development, rather than a system factor.

4.2.2.3 Issues / interesting aspects / complexities related to sustainable development practices and learning pathways

Experiences of systems factors: WA2's lack of interest in further education is a tension in terms of redressing past inequities and how the system is experienced. The focus group in which WA2 was participating reflected similar issues to those expressed by WA2. Thus, these appear to be collective issues. Learning pathways of the collective reflects a challenge as this is not catered for in the system. WA2 and his colleagues were not able to access ABET training because as they say "we have never been trained on ABET". The absence of ABET raises complexities in terms of constraints within the system factors of both the NQF and internal systems within the Municipality.

4.2.3 Worker 3 (WA3)

4.2.3.1 Introduction of the person and their early education history



WA3 is a black male, working as a rubbish collector within the Municipality. This is his first experience working for a Municipality. He has been doing this job for three years. He left school at Grade 11. He used to be involved in a cleaning project in the community. He applied when he found out there was employment opportunity at the Municipality. He has an interest in keeping the environment clean but no other training was provided.

The learning pathway diagram of WA3 shows he left school in Grade 11 and no other training provided.

4.2.3.2 Learning pathway decisions and experiences related to the sustainable development practices

Experiences of systems factors: Family circumstances have propelled WA3 to move from school to home to the workplace. He explains it in this way "when you have no option what can you do?" The education and training system in this particular case does not factor in conditions of economism, creating tensions in terms of transition from one stage of one's life to the other. Life experiences neither contribute towards a qualification, nor a learning pathway. The NQF system only

caters for him in the Further Education Training band, the equivalent of a college national certificate (vocational).

Access: There is no access opportunity for WA3 for further learning while in the workplace. He displays a keen interest in training and developing further educationally and occupationally, as shown by this statement “they have always said there will be training, but none so far”.

4.2.3.3 Issues / interesting aspects / complexities related to sustainable development practices and learning pathways

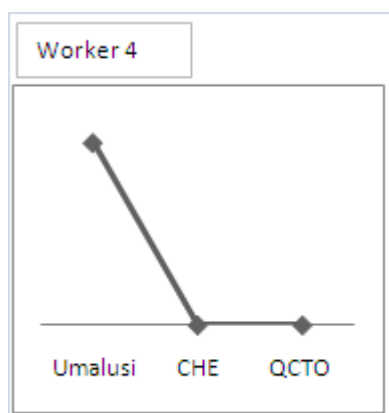
Tensions: WA3 considers his job important. In addition to this, he has an interesting aspect he brings up on the issue of interaction with the community and their pre-conditioned perceptions and considers this important, as shown in this statement from his interview: “it is difficult working with the community even when you try to educate them because they put you at the level of the kind of work you do”. Interest in these aspects is an indication of good potential for making progression along a learning pathway. As things stand this is not catered for in the system.

Issues of lack of access to managers emerge at two levels, namely worker-manager relationship and lack of support from managers, as shown by these statements from the interview with WA3: “Every time we speak of new equipment we are told about the budget. We are the ones who suffer. Maybe the supervisors should be trained too on what we do, then they will understand the things we face in our daily work”. This creates barriers and tensions for any form of communication related to a learning pathway or progression for the worker.

Quality: Poor working conditions were observed to be non-enablers for quality and sustainable development practices. In the case of WA3, inadequate human resources (not enough people to do the job) and inadequate supply of proper working equipment were constraining WA3’s abilities as these were either hardly there or not there at all.

4.2.4 Worker 4 (WA4)

4.2.4.1 Introduction of the person and their early education history



WA4 is a black male, working as a domestic refuse collector within the Municipality. He has a Grade 12 certificate and is a qualified electrician at Grade 12 level (vocational). He has been working as a domestic refuse collector for a year now. He is doing this job because there are no jobs within the Municipality related to his qualification as an electrician.

The learning pathway diagram of WA4 indicates a Grade 12 certificate, the highest qualification under Umalusi. The learning pathway deceptively does not indicate the FET level (vocational) for WA4 as a qualified electrician since it is at the same level as Grade 12.

4.2.4.2 Learning pathway decisions and experiences related to sustainable development practices

Experiences of systems factors: WA4 is qualified on the highest level of the Further Education and Training band, at the level of a National Senior Certificate. His learning pathway was shaped by his choice of subjects in high school, Xhosa, English, Afrikaans, Maths, and Physical Science which led him to study for a vocational occupation as an electrician.

Mobility/progression: According to the NQF structure, WA4's Grade 12 and vocational electrical certificate appear to be on the same level. There is no indication of mobility or progression on his learning pathway beyond this level.

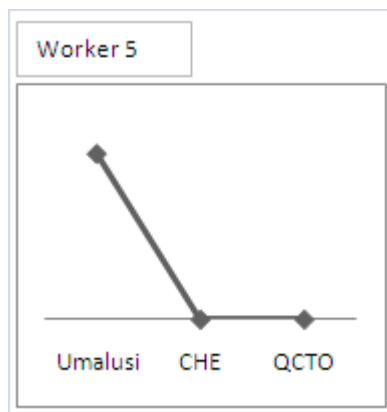
Tensions: WA4's family circumstances, social and economic circumstances propelled him to look for a job in the Municipality despite the mismatch between the job that he obtained, and his skills and knowledge. His hardly existing learning pathway has no relevance to sustainable development practices.

4.2.3.3 Issues / interesting aspects / complexities related to sustainable development practices and learning pathways

Quality: In WA4's case, social and economic issues indicate some measure of influence on the level of education, the choice and quality of occupation and the quality of life (not necessarily in this order). The unavailability of jobs in the area that he is qualified for has also affected his life path. This is ironical, as it is well known that in South Africa there is a shortage of technically qualified people.

4.2.5 Worker 5 (WA5)

4.2.5.1 Introduction of person and their early education history



WA5 is a black woman nursery worker within the Department of Parks and Recreation of the Municipality. She has been in this job for five years now. She started in 2006 as a casual worker and the following year, in 2007 was made a permanent worker. She and her female colleague started working at the 'Working for Water' Programme before working for the Municipality. She left school in Grade 11.

WA5's learning pathway diagram shows no progression since finishing school in Grade 11. The change in status from casual to permanent employment does not show influence on her learning pathway. The Water programme where some accredited training was given relevant to the Working for Water practice, not sustainable development in the Municipality (QCTO).

4.2.5.2 Learning pathway decisions and experiences related to sustainable development practices

Systems factors: WA5's learning pathway experience hardly exists. According to the NQF Grade 11 is the equivalent of a College National Certificate at FET level.

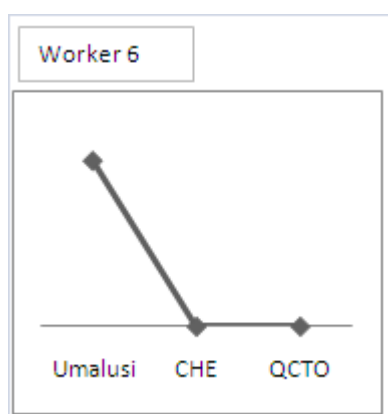
Mobility/progression: The decision to move from the 'Working for Water' programme and to work for the Municipality first as a casual worker and eventually as a permanent worker does not lead to either progression or mobility in her learning pathway. There is no relevant qualification to sustainable development practices within the current position within the Municipality.

4.2.5.3 Issues / interesting aspects / complexities related to sustainable development practices and learning pathways

Quality: The ability of WA5 to relate occupation and sustainable development practices is shown in this extract from her interview counting with her fingers she says “the work we do saves water, saves and protects indigenous plants. Plants are like human beings they eat and breathe just like us”. This indicates potential for learning and sustainable development which is ignored in this learning pathway as no opportunities for further learning are available.

4.2.6 Worker 6 (WA6)

4.2.6.1 Introduction of the person and their early education history



WA6 is a black male tree cutter in the local Municipality. He has been doing this job for seventeen years. He left school in Std 3 and has not had any other training.

The learning pathway diagram of WA6 shows that he left school at Std 3 and has no other training or qualification.

4.2.6.2 Learning pathway decisions and experiences related to sustainable development practices

Mobility / progression: WA6’s learning pathway hardly exists. It starts and ends at entry level skills at the General Education and Training level. The only training he has ever been on is tree cutting machine use but this is not a qualification, however, it has assisted him to improve his workplace occupational tasks.

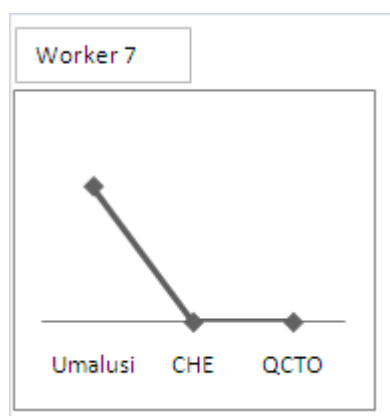
He has had no way to ‘get out’ or ‘move on’ from this occupation for seventeen years as no opportunities for learning pathways development were on offer to him.

4.2.6.3 Issues / interesting aspects / complexities related to sustainable development practices and learning pathways

Access and contextual circumstances: WA6's story indicates that social and economic experiences made him take the decision to take the only available occupation of tree cutting for survival purposes.

4.2.7 Worker 7 (WA7)

4.2.7.1 Introduction of person and their early education



Worker WA7 is a black male working at the commonage within the local Municipality. He started working in this job in 1982, thirty years ago. He started working at the Parks Department, cutting grass for eighteen months and then moved to the Commonage for this job that he has been doing ever since. He is the supervisor of the commonage group. He completed

school at Std 4 level.

The learning pathways diagram of WA7 shows his highest qualification is Std 4. No other training has been received.

4.2.7.2 Learning pathway decisions and experiences related to sustainable development practices

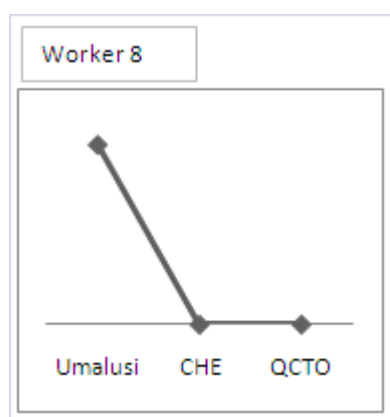
Mobility/progression: The highest level of literacy for WA7 is Std 4. This is an entry level skill. Although WA7 is in a supervisory position, this is not based on any qualification acquired but rather on the length of service in his occupation. His movement seems to be strictly established on change of title from ordinary worker to supervisory worker and is not based on provision of training or qualifications to further his learning pathway. There is therefore hardly any learning pathway shaped by the education and training system, although he has clearly experienced a learning pathway based on years of experience and has managed to progress to some extent in the workplace.

4.2.7.2 Issues / interesting aspects / complexities related to learning pathways and sustainable development practices

Experiences of system factors: The aspect of seniority in occupation seems to be a contributing factor towards shaping WA7's otherwise hardly existing learning pathway. Providing training or qualifications linked progression opportunities does not seem to be catered for in the system. WA7 reflected on this as follows: "I started working here in 1982, I started working at Parks Dept cutting grass for right months and since then I have been working at the commons".

4.2.8 Worker 8 (WA8)

4.2.8.1 Introduction of the person and their early education and history



Worker WA8 is a black male working at the Sports and Recreation centre of the Municipality. He works as a caretaker and has been in this occupation for eleven years. He completed school at Grade 12.

The learning pathway diagram of WA8 shows the highest qualification is Grade 12. It shows that there is no further training.

4.2.8.2 Learning pathway decisions and experiences related to sustainable development practices

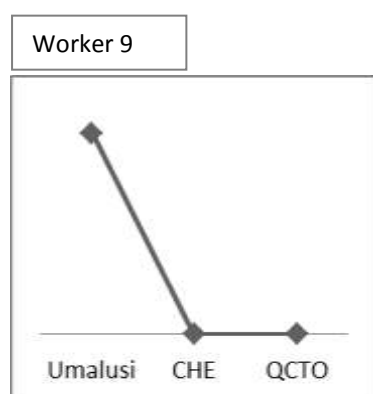
Mobility/progression: WA8 is a worker with a Grade 12 qualification, the highest certificate in schooling on the Further Education and Training band. His learning pathway hardly exists as there has been no further qualification after Grade 12 for him. His learning pathway is based on years of experience and learning from others which is not recognized on the NQF system, except through recognition of prior learning processes which are not used in the Municipality context where he works.

4.2.8.3 Issues / interesting aspects / complexities related to learning pathway and sustainable development practice

Experiences of systems factors: Learning from others and years of experience are noticed to be contributory factors for WA8 which do not seem to influence or articulate access to the workers' formal learning pathway in any form.

4.2.9 Worker 9 (WA9)

4.2.9.1 Introduction of the person and early education history



Worker WA9 is a black male, a water and sanitation employee in the Municipality. He has been in this position for four years. His highest level of qualification is Level 2 ABET which is the equivalent of Grade 10 according to the NQF structure. He is currently undergoing water and sanitation training accredited by LG SETA and Water SETA which has a possibility of a learning pathway from level 2 to 3 on the NQF if

training is continued.

His learning pathway diagram shows that his qualification is at level 2. Even though currently undergoing training, no other training has been received previously.

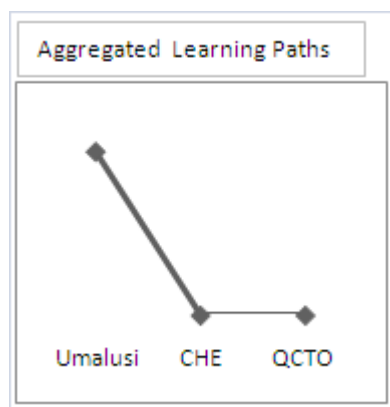
4.2.9.2 Learning pathway decisions and experiences related to sustainable development practices

Mobility/progression: WA9 is part of a group that is undergoing training on water and sanitation. This is the only group amongst the workers interviewed which is receiving occupationally directed training. The training programme is at level 2 which makes it possible for him to follow on to level 3. This experience will help shape his learning pathway. Previously, before coming to the Municipality his job was to make water tanks. This decision was in no way a progression but a change from one occupation to the other, from one employer to the other, in the same field.

4.2.9.3 Issues / interesting aspects / complexities related to learning pathway and sustainable development practice

Change in occupation from water tank builder to water and sanitation employee was not linked to change in learning pathway.

4.2.10 A summary of the workers' learning pathways



An aggregate of the workers' learning pathway graphics displayed here, reveals that there is a general low level of education and literacy amongst the workers that shape the workers' learning pathways. None have a qualification related to sustainable development practices. Most learn from each other and through years of experience in the same occupations. This seems to pose tensions and complexities on the transition points

of the NQF structure. None of the workers had completed school beyond Grade 12, and most of those interviewed had 'dropped out' of school before Grade 12. In most cases economic circumstances forced them into work, and in the workplace there have been hardly any education and training programmes that have helped them to further their formal learning pathways. As indicated above, only one category of worker was undergoing NQF accredited training at level 2, potentially providing further learning opportunities at level 3. ABET training was generally absent in the workplace. Their learning pathways are therefore mainly experiential, but this is not recognized, and in some cases workers continue with the same job for between 30-40 years as shown above. Formal learning pathways therefore hardly exist. The level of education amongst the workers ranges from zero schooling, to the highest level of Std 10/Grade 12.

From the learning pathway diagrams (and the synthesis diagram above) it is possible to show that their education and training has been partially provided for through the Umalusi subsystem, with very little influence from the QCTO and none from the CHE subsystem on the NQF.

4.3 Policy and Strategic Documents and Worker Learning Pathways

In this section I review some of the documents outlined in Table 3.3 to identify if and how relevant documents related to learning pathways of workers consider issues related to

sustainable development learning pathways. I work with aspects of the documents that shed further light on system intentions to address the kinds of issues raised about learning pathways described in section 4.2 above. In particular I comment on issues of mobility and progression, access and quality, as these seemed to be the most pertinent to the worker learning pathways as described in section 4.2 above.

4.3.1 Mobility and progression

According to the workers' experiences as reported in section 4.2 above, there is a clear indication that there is very little or no mobility or progression on their learning pathways, as influenced by the education and training system (the NQF and its sub-structures). This indication is contrary to Doc-06, on the National Qualifications Framework which states that

...level descriptors are meant to aid learners progression through the learning system, since they are designed to provide a recognised currency for learning achievements and thus enable standards and qualifications across all the domains, disciplines, fields and learning pathways to be pegged at levels that are appropriate and mutually consistent (p. 12)...

Furthermore, the evidence of no mobility or progression is in stark contrast to what the training policy of the Municipality in support of one of the NQF objectives purports to accomplish as it states that, *"Training and Development Policy shall have to lead to acquisition of credits for learners in terms of the National Qualifications Framework and promote vocational and educational progression of employees of Makana Municipality"* (Doc-04, p.3). This is an indication of a gap which needs to be filled.

The experiences also show further contrast to another objective of the NQF which is directly relevant to mobility and progression which seeks *"... to facilitate access to, and mobility and progression within education, training and career paths."* (Doc-06, p. 1)

Doc-03, the Needs Analysis, reports on the above issues and attests that most junior personnel in municipal contexts had only rudimentary formal education with almost none completing school beyond Matric level.

As shown in section 4.2 above, some of the workers indicate a lack of interest and willingness to learn or to be on training for the work they do, mainly because of age.

They are almost on pension, and going on any kind of training would be a waste of time as they mentioned (WA1 and his colleague). This issue of retirement age is also one of the identified educational constraints which workers have and reflects a belief that “*adults do not attend training*” (Doc-01, p. 64). This issue of retirement shows constraint factors at two levels which includes lack of mobility or progression, coupled with a history of no access to recognised certificates at their educational level, sometimes for as long as 40 years as shown in the case of WA1.

These issues of constraints are opposed to the intentions of one of the principles of the Makana Municipality’s Environmental Education and Training Strategy which is to involve learners of all ages as it has lifelong application (Doc-01). The involvement of adult workers and a need to remove barriers and access learning is also affirmed by the national definition of ABET in South Africa at large which states that,

Adult Basic Education and Training (ABET) is the general conceptual foundation towards lifelong learning and development, comprising of knowledge, skills and attitudes required for social, economic and political participation and transformation applicable to a range of contexts. ABET is flexible. Developmental and targeted at the specific needs of particular audiences and ideally it provides access to nationally recognised certificates. (Doc-07, p. 5).

4.3.2 Access

Access to the quality of education is evidently not available for the workers in Makana Municipality, not even at ABET level as shown in section 4.2. This evidence seems to go against the policy document on Adult Basic Education and Training which articulates that,

...Every person, child, youth and adult shall be able to benefit from educational opportunities designed to meet their basic learning needs. These needs comprise both essential learning tools (such as literacy, oral expression, numeracy and problem solving) and the basic learning content (such as knowledge, skills, values, and attitudes) required by human beings to be able to survive, to develop their full capacities, to live and work in dignity, to participate fully in development, to improve the quality of their lives, to make informed decisions, and to continue learning... (Doc-07, p. 9)...

Low quality education and poor educational background as sources of contextual constraints, as reported on in section 4.2, are also identified in the Makana

Municipality Environmental Education and Training Strategy (Doc-01). The poor educational background is a constraint on access to mobility on learning pathways. A history of low quality of education for workers is further identified in Doc-01 as a contextual constraint, which is to be responded to by yet another NQF objective which seeks to enhance the quality of education and training in order to address this context.

In this document it is also noted that historical educational imbalances seem to negatively influence articulation and access of learning pathways of the workers on the NQF system. The issue of lack of access to learning pathways of workers is recognised in Document 08, the General Education and Training Certificate, reflecting a desperate need for redress of the situation. It indicates that “... *each GETC [General Education and Training Certificate] will provide access to various learning pathways, both vertical and horizontal, in terms of the purpose of the qualification. The scope of access provided by each GETC will be determined by the qualification itself*” (p. 3).

4.3.3 Quality

From the interviews with the focus groups, social and economic issues were raised either directly or indirectly related to the questions asked, as indicated in section 4.2 above. These generally related to the quality of life of the workers. Although these are not directly related to sustainable development practices, they reflect some of the barriers created by this situation affecting access to learning pathways.

The aspect of quality of life and its relationship to learning pathways is portrayed by some of the responses from the workers, such as WA4 when he says “because of an empty stomach I must enjoy my work” which reflect a particular set of social factors, as reported in section 4.2. This was also reported on in Document 03, the Skills Needs Analysis, which indicates that certain social factors which include a number of illnesses and funerals, and some propensity for people to be absent after payday caused considerable problems at times. These problems also appear to cause a variation of barriers at different levels on the implementation of sustainable development practices in the occupations concerned. A prime example given in relation to one of the barriers was that “*if people were paid in the morning at the end of the week or the month, which has become an accepted norm, then most often*

the person will be absent for the entire day” (Doc-03, p.19). These issues further compound the two most important principles of the Environmental Education and Training Strategy of Makana Municipality which intentionally seeks to:

- *Consider the relevance of learning for the learners’ lives and the community broadly.*
- *Link environmental issues and risks to health, socio-economic development, social justice, ecological integrity and quality of life. (Doc-01, p. 15).*

The intention to address issues of quality of life as a barrier influencing learning pathways is also one of the NQF’s underlying principles in accordance with the *NQF Act (Act 67 of 2008)* which intends to contribute towards “*advancing personal, social and economic development*” (Doc-06, p. 1). This factor further upholds contributing towards full personal development of each learner (workers) for the development of the nation at large.

4.3.4 Issues / Interesting Aspects / Complexities related to sustainable development practices and learning pathways

There are variations in the responses of the workers on how important their job is in relation to sustainable development practices as reported in section 4.2 above. WA2 thinks his job is important because “it keeps the environment clean, but if we had alternatives we would not be here”. WA4 also thinks his job is important, “but it does not seem the Municipality considers it to be so. When we ask for equipment to do the work we are supposed to, we do not get support, and yet we are expected to do the job the best way possible”. This issue also appears in some of the documents. For example, the Skills Needs Analysis report (Doc-03) explains the notion that if people understand their work better, the reasons behind what they do and the importance of their roles, this could lead to not only better performance, but also to greater pride and maybe less absenteeism (as this seems to be a concern in the Municipality as this indirectly influences the workers’ learning pathways).

The aspect of working conditions/environment is also noted in Document 03, the Needs Analysis which emphasises the fact that,

... the issue was complicated by a lack of equipment, with only two refuse compaction units which were frequently out of commission at the same time. Essentially for a number of reasons, including lack of adequate staffing, lack of equipment and lack of skills, this department was under severe constraints. (p. 18)

The goals of the Makana Local Environmental Action Plan are similar to the goals of Local Agenda 21 programmes. These are also stipulated in the Makana Environmental Education and Training Strategy. The one goal specifically associated with the workers' working conditions advises “...*minimising the harmful effects on health and environment from the production and use of chemicals by 2020*” (Doc-01, p. 18). This strategic document reflects inconsistency with the goal on paper and what is practiced for ‘real’ on the ground as workers did not have proper working equipment and working conditions as reported in section 4.2. Doc-01, the Makana Environmental Education and Training Strategy further emphasises the importance of considering the relationship between human rights, social justice, inclusivity and healthy environment.

Observations of the group, as a collective, is another interesting aspect which has varied relevance to learning pathway experiences. This aspect emerges in the tension between those who express willingness and interest in further training (e.g. WA5, WA8 and WA9) and those who are not interested (e.g. WA1, WA2 and WA3). The aspect of age difference appeared to be an important factor here, with younger workers being willing to learn further and those almost at pension age not being interested in learning further, as shown in section 4.2 above. Varying literacy levels also appear to be a source of complexity in their learning pathways. This reveals complexities of learning pathways of the collective, and it also shows that a ‘one size fits all’ approach will probably not work for all workers in the same way.

Working as a team is another aspect of interest noted which influences learning pathways. This is articulated by WA9 in his statement saying,

... there is cooperation amongst ourselves [his colleagues]. We listen to each other, I have been taught so many things by my colleagues. We listen to each other, we teach each other, we advise each other, I have been taught so many things by my colleagues. (WA9)...

WA9's group expresses that they wish to have specialised training in order to help them do their job even better. In this regard, Doc-01, The Makana Environmental Education and Training Strategy, acknowledges the importance of team spirit efforts and recognises that there may be more than one way of knowing something and different knowledge may provide different views and perspectives which these

workers seem have adopted on their own initiative, since there is no training provided by the Municipality. There, however, seems to be a gap between what the workers experience and what the document states.

The issue of capacity in the form of staff shortages seems to be a complex matter. On this aspect, WA4 points to the frustrating staff shortage situation generally. He says, *“What I don’t understand is that in all of this, when there is a shortage of staff, we get taken to other departments and work from there”* (WA4). This reflected aspect of lack of capacity equally responds to the question asked whether he and his colleagues enjoy their work or not, i.e. job satisfaction. The complexity of this issue is compounded by the fact that the rate of absenteeism is high. In this regards, Doc-03 (the Skills Needs Analysis) also noted that *“although most personnel were dedicated to one particular aspect of waste management, such as collection of waste or driving of particular vehicles, or cleaning toilets or sweeping streets, they often had to be moved to other tasks to make up for shortages of numbers”*(p. 18). However, looked at positively, access to other departments exposes possible opportunities for learning pathways. These pathways can be across sections within the various departments within the Municipality.

Reflecting on this issue at a broader level, Doc-03, the Needs Analysis, indicates a list of scarce and critical skills related to the management of environment and associated sustainable development practices. On this list, the workers’ occupation of rubbish collector and horticulture/nursery assistant are included. Doc-05, the Environmental Sector Skills Plan for South Africa also identified the need to address scarce and critical skills in the environmental sector.

Doc-03, the Needs Analysis, further mentions that the current lack of capacity and resulting skills needs in local government has a historical precedent. The workers were concerned with this issue, as reflected in WA2 saying *“they have always said there will be training, but none so far, even as casual workers. They made us fill in forms but nothing has happened, and we have never been trained on ABET”*. The lack of capacity seems to compound the layer of barriers that influence access, mobility and progression in individual career paths.

Support from supervisors/managers and working relationships also seem to be an issue for the workers. WA4 states that, *“the problem lies with our managers*

sometimes. *They cannot work with us like human beings. Sometimes they do not have the right approach*". He further states that *"when we ask for equipment to do the work we are supposed to, we do not get support, and yet we are expected to do the job the best way possible"*. WA9 concurs and explains that the equipment they work with needs upgrading and renewal in order to help them do their job better. *"If the manager were cooperative, our job would be even more enjoyable."*

There is some evidence showing the ability of some of the workers to relate their daily work to sustainable development practices. When asked "do you think your job relates to the environment? WA1's response was, *"yes, cleaning toilets and making sure they are clean is important for a healthy environment"*. WA8 explains in detail when answering the same question that *"... yes everything around us, the work we do is about the environment. Working with grounds, trees, grass and how they are looked after is important. Water usage, how and how much water is used to water the grounds. Make sure the grounds are clean and there is no waste lying around"*.

It appears that for most groups of workers, their supervisors considered to be senior are in these positions because of length of service and not through receiving a qualification. The Skills Needs Analysis documented this situation as follows:

...The most junior personnel had very little or no training or education in the environmental field, and this included people in supervisory positions who had achieved these through length of service rather than through development of special skills ... (Doc-03, p. 18)

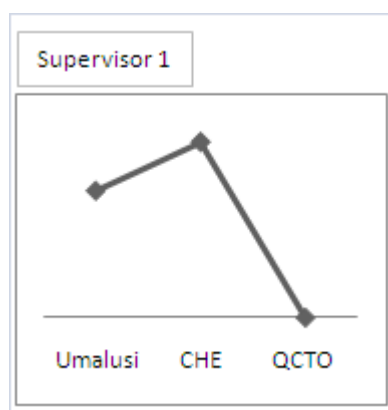
In summary, the analysis of documents shows that the issues related to the workers' learning pathways as reported on by the nine workers involved in focus group interviews in this research in section 4.2 appears to be more widely situated as shown by the Needs Analysis document (Doc-03) which surveyed more than one municipality in terms of environment and sustainability development practices and capacity needs. The issues also appear to have been there for some time as the Makana Environmental Education and Training Strategy (Doc-01) was prepared some years ago (2005), yet it reflects similar issues to those found in this research. Furthermore these appear to be more widely systemic as reflected in policy

objectives and intentions of wider system documents such as the NQF document (Doc-06) and the Environmental Sector Skills Plan for South Africa (Doc-05). Both learning pathway issues (e.g. training provisioning issues), and contextual and historical issues (e.g. poor educational quality, wider lack of capacity etc.) are reflected in these documents. These issues will be revisited in Chapter 6, where underlying mechanisms and system factors influencing learning pathways will be reflected on in more depth.

4.4 The Supervisors' Stories

4.4.1 Supervisor 1 (S1)

4.4.1.1 Introduction of the person and their early education history



S1 is a black male Sports Manager in the section of Sports and Recreation of the Parks and Recreation Department in Makana Municipality. His sustainable development responsibilities include planning, leading, organizing, giving guidance and controlling the activities of the following subsections: 1. Indoor Sports centre 2. Sports ground 3. Playgrounds. Through these activities he is expected to ensure a professional and effective service delivery to all the residents of Makana Municipality. He was appointed at Makana Municipality in 2003 to carry out these responsibilities. He completed his high schooling at Nombulelo High school in Grahamstown in 1990. He obtained his Bachelor of Social Science Degree from Rhodes University in 1999. This was followed by a Postgraduate Diploma in Enterprise Management. He further obtained a Diploma in International Studies in 2002 and a certificate in Excellence Management also from Rhodes University in 2007. S1's learning pathway diagram shows that he completed his high school qualification under Umalusi, and proceeded to higher education (CHE) which dominates his qualifications. Under QCTO, there are no qualifications related to sustainable development.

4.4.1.2 Learning pathway decisions and experiences related to sustainable development practices

Access: S1's accessible relationship with his supervisor seems to have helped shape his learning pathway. S1 explains that after two months of being appointed as foreman he decided to discuss with his manager the possibility of expanding his job to Sports Manager because he felt his job content was empty. His job description indicates that he was appointed as Sports and Recreation Officer.

Mobility: S1's mobility seems to be mainly shaped by his CHE subcategory qualifications which are not related to sustainable development. There is no mobility in the area of QCTO sub system.

4.4.1.3 Issues / Interesting aspects / Complexities related to his learning pathway and sustainable development practice

Lack of access to a learning pathway related to sustainable development appears to lead to the supervisor teaching himself around this aspect of his occupation. Being self taught, however, does not seem to lead to any formal qualification or progression or mobility in his occupation. Asked how he familiarised himself with his area of work S1 replied that he has taught himself through the internet and sports magazines. He responds further that one thing which he has learnt from the magazines is the use of bore holes instead of tap water. He adds, *"we also have a watering trolley which moves for ten meters at a time and waters on its own, it is programmed and remote controlled"*. He says this way the person responsible can focus on other work and only check after the set time has lapsed. With excitement his face lights up as he expresses, *"that's technology for you!"* His concern, however, is that with technology the problem is the more you improve, the more you dig a hole with the unions because this has work implications. With a disappointed tone he ends that *"the more we fix, the more problems come up"*.

Access to opportunities such as working on the sustainable green project within his Directorate seems to shape S1's learning pathway related to sustainable development, but this does not lead to mobility or progression. When asked whether his job relates to the environment he reflects and answers with a question, "...

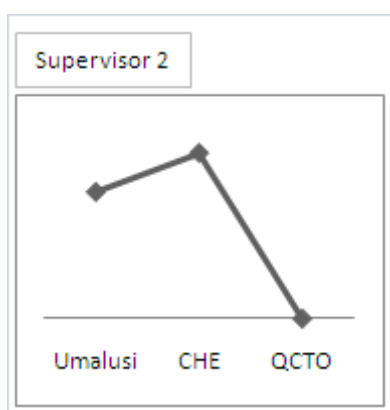
sports and green? Sports and environment? It does!!!” ending with a smile of affirmation. With the connection made, he continues and adds that,

...there is another facility that we are working on for sports. It is going to be green. We are going to have about 88 trees planted. Yes it is relevant. 98% of the oval is going to be green. We are going to plant grass as well. Everywhere we plant something we make sure Mr K(a colleague) in Horticulture follows. He goes and plants trees, we work together, also the parks (S1)...

As he continues to speak, yet another ‘aha Moment’ arises and he adds that he did not think green when working on facilities but now he sees the connection in relation to the environment through working with his colleague Mr K.

4.4.2. Supervisor 2 (S2)

4.4.2.1 Introduction of person and their education and training history



S2 is a black female Environmental Officer for the Commonage with the department of Parks and Recreation in the Municipality. Her sustainable development responsibilities under the commonage include ensuring smooth running of the commonage farms. She is also to manage and direct all activities within the commonage and Environment of the Parks and Recreation division to ensure a professional and effective service delivery to all the residents of Makana Municipality. She has been in this position for six months. She has a Bachelor of Agricultural Economics from Fort Hare University. She also has a Diploma in Business Management from Almega College. Her CV also shows she has a certificate in Project Management from the University of South Africa.

S1’s learning pathway diagram shows that she has been able to access education and training opportunities in the Umalusi subsystem, the CHE subsystem and the QCTO subsystem of the NQF, the most dominant being the Umalusi subsystem which gave her access to the CHE subsystem, after which she was able to access a training programme from Almega College (QCTO subsystem) and then continued this learning pathway within the CHE subsystem.

4.4.2.2 Learning pathways decisions and experiences related to sustainable development practices

Tensions: There appear to be issues of tension related to the mismatch of skills and knowledge. When S2 was asked if she enjoys her job she responded despondently, and said that she does not really enjoy the work she is doing. She added *“the work that I am doing is supposed to be agricultural oriented since that’s what I am qualified for, but I am employed as an Environmental Officer”*. Her job description title also shows she is employed in the post of an Environmental Officer.

She explains in detail that she did her junior degree in Agricultural Economics and when the job was advertised, the content was exactly the same as what she was doing in her previous job, and that is why she applied. She says: *“I sometimes ask myself why the position was advertised as Environmental Officer, but I am doing something else”*.

4.4.2.3 Issues / Interesting aspects / Complexities related to her learning pathway and sustainable development practices

The importance of the occupation appears to carry a considerable amount of influence relating to how the individual’s learning pathway is shaped. When S2 was asked if her job was important, she replied that her job was important, but has its own challenges and issues of uncertainty. She says that sometimes she asks herself what she is doing at work (repeating what she mentioned earlier). She expresses with deep regret that *“it is September now and I am not yet there. Most of the things I’m supposed to be doing are done by the LED (Local Economic Development) section”*.

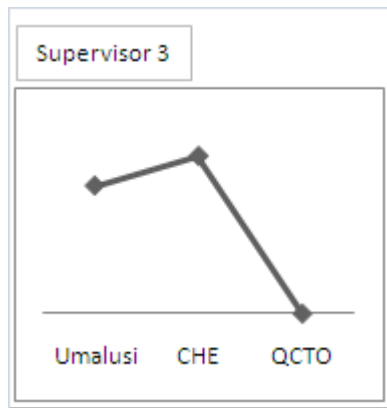
There appear to be issues of inefficiency within the system of Makana Municipality. As expressed by S2, there is lack of a *‘proper plan’* and she adds, *“there is supposed to be an integrated system but right now everyone is doing their own thing”*.

Disorganised experiences of the internal system seem to have created a barrier in S1’s learning pathway. When asked what kind of support system she will get from the Municipality to enable her to do her job better she was not sure what kind of

support system she would get from the department. She was not sure about the policy in this regard, and noted that she would have to find out first.

4.4.3. Supervisor 3 (S3)

4.4.3.1 Introduction of the person and their education and training history



S3 is a black male supervisor for refuse removal in the Social & Community Services Directorate at Makana Municipality. He has been in charge of the domestic refuse collection in the cleansing section for six years. His official letter of appointment indicates that he was appointed as senior foreman, refuse removal, with effect from 2005. His job description copy could not be found on file to confirm this alignment. He has a

Matric Certificate and a Diploma in Senior Primary Education from Rand Afrikaans University (RAU) which he obtained in 1997. He has also attended a few informal certificate courses related to his occupation such as basic and intermediate computer courses, landfill management and operation training, managing absenteeism in the workplace and how to relate to the community-Batho Pele Principles. His responsibilities for sustainable development include managing the Environmental Health and Cleansing services of Makana Municipality and surrounding areas, which includes; operations, administer, control and coordinate the provision of Environmental Health, and Business licensing.

S3's learning pathway diagram shows that he has a high school qualification (Grade 12) under Umalusi subsection, followed by a higher education qualification (Diploma) under CHE subsection and no qualification related to sustainable development in his workplace under QCTO.

4.4.3.2 Learning pathway decisions and experiences related to sustainable development practices

Access: It appears S3's previous work opportunities have helped shape his learning pathway. While working for the Department of Education, he was appointed as tutor

for Adult Basic Education and Training (ABET) at Zanokhanya. He then worked as a community liaison officer. He also experienced working as a supervisor, for CENSUS 2001 in Grahamstown and did some work with the Department of Works, working on roads. This previous work experience, although completely unrelated to his current occupation, allowed him access to apply for his current job when it was advertised and he was the successful candidate.

4.4.3.3 Issues / Interesting aspects /Complexities related to his learning pathway and sustainable development practices

One of the areas which S3 suggests is an issue which relates to his learning pathway is insufficient funds for bursaries and study support. He indicates “... *if the bursary system was intact, it would make it possible for us [him and his colleagues] to register and study further. This would empower us and contribute better to the work we do*”. He says “*the system now is pay yourself and claim later*”

S3's experiences show a lack of resources as constraints in his occupation. When S3 was asked what kind of training would help him do his job better he responded “...*it is computer work since technology is advancing so much we have to move with the times. It is empowerment. Even in our offices we have only one computer which we share*”. Technology seems a necessary resource for S3 in advancing knowledge on sustainable development practice.

One of the challenges S3 mentions is the poor working environment which is disabling, he says “*being able to take what you have learnt to the work you do, and of course time and resources become important*”. An enabling environment seems to be a necessary factor in allowing access, mobility, and progression for an individual's learning pathways.

Although S3 does not have a qualification directly related to sustainable development, he is involved in a community awareness project. He explains that,

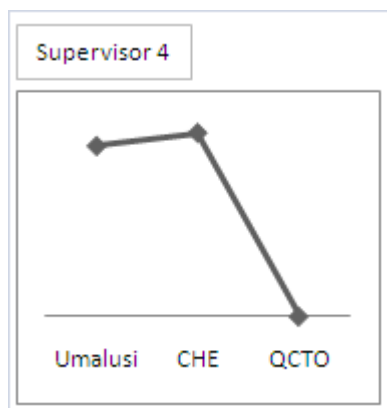
... in the section we clean one or two wards a month depending on how dirty it is. During this process those whom we are to inform about the importance of the environment and keep the area clean, we do. But it is a long process. If they are able to understand that, we will surely be able to sustain our environments...

Understanding the relationship between the occupation and the environment seems important for his learning pathway. S3 says in one way or the other his job does relate to the environment. He says *“you would find so many open spaces, like parks, and open spaces in our communities. If there is nobody taking care of those places, they were going to be filthy. Where there is grass and trees we make sure there are no papers, and keep them clean and green”*.

S3 also thinks his job is important and emphasises that, *“without us doing this job imagine what Makana would be like? Our lives, our environment would have been in danger. Business would not be happening the way it is. It is very important.”* He goes on to mention that *“... it is hazardous not to collect waste in our surroundings. We are concerned with domestic waste, business refuse and cleaning containers. We make sure our environment is safe and clean”*.

4.4.4 Supervisor 4 (S4)

4.4.4.1 Introduction of the person and their education and training history



S4 is a white male supervisor for Water and Sanitation at the local Municipality and has worked for the Municipality for forty three (43) years. He has a formal certificate in plant and water fitting but does not mention where it was obtained from. He has not done any further training. His sustainable development responsibilities mainly focus on waste water treatment and purification.

S1's learning pathway indicates that he has a Grade 12 certificate under Umalusi and a National senior certificate (vocational) under CHE at equivalent levels. There has been no further training related to sustainable development in his work since he acquired the formal certificate under CHE.

4.4.4.2 Learning pathway decisions and experiences related to sustainable development practices

S4s highest qualification is a Certificate in plant and water fitting. He says, *“well... I have done waste water treatment and purification works, ever since, that’s what I’ve been focusing on”*.

S4 has not received any specialised training related to his work. He explains that he has learnt from experience over the years and learning from others was how he achieved it. He has never been trained specifically on water. His learning pathway is primarily based on acquired years of working experience.

4.4.4.3 Issues / Interesting aspects / complexities related to his learning pathway and sustainable development practices

When S4 was asked if his job is important, his response was his job is very important and that in working with water treatment works it is crucial that one does ones’ work properly because it deals with health and also, *“you have to make sure that the plant treatment runs properly, otherwise you gonna contaminate the river which is not so good”*.

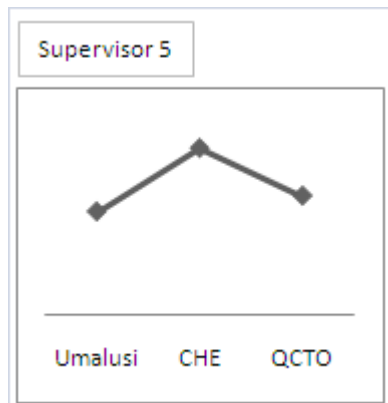
S4 responds that he enjoys his job, when asked whether he does. With laughter he says, *“I enjoy everything I do, although accompanied by lots of challenges”*. He elaborates, ensuring a thorough understanding and states that:

... well... our plant is designed for 5.4 mega litre of water and we are pushing it over 8 mega litres per day. It is about 48% overload. So you got a lot of challenges, you gotta think all the time, because you know what comes in you gotta take out. So... you gotta balance it, so... you gotta think all the time, keeps you on your toes all the time. Because you can see with all the qualities and your standards of primary health and make sure that raw sewerage does not come in because we are adjacent to the Kowi river which goes down to Port Alfred that goes straight into the drinking water dam. So you gotta be careful all the time...

He is clear on the fact that the work he does is related to the environment and sustainable development. He says *“well ... I mean you take different things into account ... for I mean you gotta be careful with your smells, when your sludge goes sour or “vrot” [Afrikaans word for rotten], you work with methane gas, so all that is risk related to the environment”*. Such clarity seems vital in S4’s learning pathway.

4.4.5 Supervisor 5 (S5)

4.4.5.1 Introduction of person and their education and training history



S5 is a black female manager in Agriculture, positioned in the Local Economic Development (LED) section and has been in this position since 2009. She completed high school at Hebe-Hebe Senior Secondary School in 1997. She subsequently got a Bachelor's degree in Agricultural Economics in 2001 and in 2003 she obtained her honours in Agricultural Economics, both from the University of Fort Hare. She

also received her Post Graduate Certificate in Education from the same university. She has also received another formal qualification which is related to her occupation in the local government; namely, Advanced Management Development Programme and another related to sustainable development in the Supporting Urban Sustainability (SUS) programme. She has also attended a number of other informal courses such as computer literacy and presentation skills, and project management. These are certificates not related to sustainable development, but provide for essential or generic skills necessary for her to carry out her sustainable development responsibilities.

Her sustainable development responsibilities include:

1. Promoting Urban and Rural Agricultural Development for animal and crop production as well as agricultural economics, marketing and finance.
2. Develop strategy and policy on SMME's and agricultural development.
3. Identify partnerships and alliances with the intention of forming linkages between Makana Municipality and other relevant stakeholders.
4. Identify the primary and secondary stakeholders actively involved and participating in the agricultural sector and involve these in agricultural development programmes.
5. Encourage the primary stakeholders to organize themselves to form up farmer organisations (farmers' co-operatives), commodity groups, farmers' associations etc.

6. Develop a database on physical factors related to rainfall, frost incidents, wind and soil.
7. Implement agricultural programmes and projects within Makana area.

Her learning pathways diagram shows the highest qualification (Grade 12) under the Umalusi subcategory, followed by the highest qualifications with an honours degree and post graduate diploma at the same level under the CHE subcategory. There is an indication of an advanced certificate received related to sustainable development relevant to her work under the QCTO subcategory.

4.4.5.2 Learning pathway decisions and experiences related to sustainable development practices

Access: Two major opportunities offered by the Municipality and accepted by S5 appear to have allowed her access to occupationally directed training and further shaped her learning pathway in relation to sustainable development practices. When asked about this, she responded yes, *“the Municipality has offered me training related to my work”*. She listed two programmes which she thinks have benefitted her greatly. She says she has been afforded the opportunity to attend an LED course which aims at introducing her to government functions, since her previous background did not consist of this. This she says has helped her understand the Municipality in terms of the Structures and Systems Acts. The Municipality is paying for this training which they will claim back from LG SETA immediately when she completes it. The training is accredited by the Local Government SETA (LG SETA).

The decision by the Municipality to nominate S5 and the experience that came with the career journey of the SUS training programme was another opportunity shaping her learning pathway. She adds,

...I would say it's not training as such but we went to Sweden and Tanzania for the SUS (Supporting Urban Sustainability) programme. This was a nine months programme spread out evenly, with one week of regional workshop in Tanzania and two weeks residential workshop in Sweden. This was followed by implementation of a project with various stakeholders in partnership with the Municipality, focusing specifically on poverty alleviation, on ecosystem services...

This programme particularly advocates and promotes education for sustainable development. She says, *“the programme has helped a lot in terms of development in my own life, that is understanding the real issues about the causes of the disasters”*.

4.4.5.3 Issues / Interesting aspects / Complexities related to her learning pathway and sustainable development practices

S5 mentions that other benefits of the SUS programme are also being able to educate others and share the experiences. She says it is important, *“educating the community at large, even where I am coming from, it helps talking about these issues. People can really see the results of global warming.” [these are, however, quite indirect]*

S5 mentions that her job is important when asked the question, “Do you think your job is important?” Her reply is that her work is very important and she wishes there was sufficient budget so that she could do more. This she explains would assist in the development of emerging farmers as well as Small and Medium Enterprises in general. *“It is one of the pillars in terms of uplifting the standards of the people of South Africa generally”*, she continues. The observed passion for her work seems a driving force in further shaping her learning pathway.

Capacity is noted to be related to learning pathways. When S5 was asked if she enjoys the job, she raised the issue of capacity. She replied,

hmmm... I would say yes, but.... it's the internal issues. There is just too much administration too. Unfortunately there is no one who is filling that gap in the technicalities as well as the managerial responsibilities. It's too much otherwise it is an interesting job if we were not under staffed.

The relationship between the environment and the occupation also shapes a learning pathway. S5 says her job does relate to the environment especially if she could only focus on the agricultural side. She says this way she will be able to focus more on environmental issues because:

... we are talking about organic farming, that's how I relate to the environment. As well as the opportunities that are related to organic farming such as carbon farming which aims at reducing the carbon foot prints. There is a lot in it. It is a matter of who can come up with the best strategies and really implement.

Because even myself I feel like I need to be capacitated at least on monitoring the processes...

An interesting aspect which S5 mentioned was the difficulties of overlap between work and study, especially paying from her own finances. The added complexity is the balance of time between work and study and the impact on quality.

4.5 Supervisors' Learning Pathways and Policy and Strategic Documents

4.5.1 Experiences of systems factors

The learning pathways of the supervisors differ from individual to individual as seen by the descriptions in section 4.4 above. They also differ in the transitions and movements they make on their career paths. Their decisions and experiences shape their learning pathways from non-conventional to conventional. This is in line with the explanation on what learning pathways are given in the document on learning pathways within and between vocational education and training and higher education. It explains that “... the term ‘learning pathway’, was interpreted as a journey of learning, but in a variety of ways and it was rarely perceived as linear...”(p. 10). It is possible to suggest that experiences of system factors are therefore non-linear or traditional.

4.5.2 Progression/mobility

It appears the main form of progression by the supervisors in relation to sustainable development issues is mainly based on knowledge and information that is gained through the courses attended. There is no movement to the next stage of transition within a pre-planned or structured learning pathway for gaining further insight into sustainable development practices as such. At a more general level, there are varied switching points for the individual learning pathways from high school (governed by the Umalusi sub-framework) to Higher Education (governed by the CHE sub-framework) but hardly any that are formally provided by, or supported by the workplace learning statement from Doc-06, the National Qualifications Framework which states that,

... the South African Qualifications Framework (NQF) has been based on a non-linear progression model that reflects the varied nature of individual learning and career choices, especially in the current era of rapid knowledge growth and occupational change. The concepts of articulation and mobility have been built

into the NQF progression model because learners and workers need to be able to exercise their options to move vertically, horizontally or diagonally between learning or career pathways as the case may be, with due credit for learning achieved. The idea of a pathway as embodying an organised sequence of connection or switching points is more appropriate to our circumstances... (p. 13).

On the same issue, Doc-04 (a document on Makana Municipality Training policy) states that “... career progression is a vocational pathway, which an employer can move to promote his or her own development and organisational capacity and attainment of its set goals” (p. 4). It further states that,

... career progression shall have to be developed within the strategic priorities of Makana Municipality, however, it does not need to be misconstrued with promotion rather as an instrumental and enabling tool for easy movement within the organization ... (p. 4).

This is contrary to what the supervisor’s learning pathway indicates, particularly in the context of workplace learning and pro-actively provided learning opportunities towards sustainable development practices.

The issue of no mobility and progression particularly on sustainable development practices goes against the intentions stated in Doc-09 on trade, occupational and professional pathways showing that ...

... learners on this pathway, both young and adult, will make the most specific and least flexible choices. It will be open to those who have been able to secure access either to a workplace learning site where they learn and practice skills and attain SETA determined competency standards or expertise recognised by a professional body...(p. 10).

The supervisors’ learning pathway generally appear to follow a pattern where their learning pathways originally start as personal choices and self-initiated decisions which are later ‘frustrated’ or which are later affected by blockages in the workplace. This is not in line with the training policy of Makana Municipality (Doc -04) which states that the Makana Municipality shall:

- 1. Ensure that education and training provision is within the identified career paths.*
- 2. Assist employees to arrive at a correct decision to choose relevant career paths and opportunities (p. 4).*

As shown in section 4.4 above, S5's learning pathway in Agricultural Economics started as a personal choice and was self-initiated until her honours and postgraduate diploma in education. She seems to have followed a similar education and training trajectory oriented towards a career in agriculture, which directly related her learning pathway to her current occupation. She seems to have also continued studying while working, and is currently completing a LED course required by legislation. Studying while working and time constraints appear to be personal barriers related to movement in her career path. These are also some of the learning pathway barriers identified in Doc-09 (learning pathways within and between vocational education and training and higher education) which reports on additional influences on study while in employment.

S2 like S5 appears to be following almost the same learning pathway related to agricultural economics, even though she is not satisfied and is unhappy in her current occupation as Environmental Officer. She has shown keen interest in learning something further that is environmentally related. In this case, her job description is 'shaping' her learning pathway differently to S5s (who was able to continue with Agricultural Economics in a local economic development context). Her learning pathway is now environmentally oriented, but as the Municipality does not have training on offer for this (unlike for S5 who could do LED training), her learning path, and associated career path development, could be viewed as being dependent on self initiative (i.e. if she can find a relevant course or system of support for her current job).

Differently to S2 and S5, S1's initial choice of study and personal decision to complete a Bachelor of Social Science twists and changes to Sports Management which is directly related to his current occupation. He appears to have studied in different fields and different sectors, via a self-initiated process, his learning pathway forming a zigzag kind of movement. He is more of 'a career merger'. This concept is discussed in the learning pathway document (Doc-09). It is described as, "... someone who has explored interest in other areas" (p. 10). In the case of S1, this included international relations, enterprise management, excellence management, and sports management, as described in section 4.4.2.2 above. He has

drawn his different experiences together and focused them towards a Sports Management career. Interestingly, and as shown in section 4.4.2.1 above, this requires environment and sustainability knowledge too, which is not provided for in his occupational context.

S4's experience shows hardly any movement made or progression on his learning pathway in relation to formal qualifications or training programmes, beyond his first tertiary qualification. His learning pathway is simple and straightforward. He has been in the same job in the field of water, same department, same section, same sector all his working life; his learning pathway seems to be primarily shaped by workplace experience. The Education and Training system has not had a strong role to play in his learning pathway, beyond his first qualification, which gave him access to the job.

S3's learning pathway shows S3 to be a 'career developer'. Doc-09 describes such kinds of career developers as *"... those participants who show consistent interest, even though they may have made several sectoral moves"* (p. 10). His career path was initially in the education field, after which he proceeded to administration, followed by public works, is currently in local government, and eventually, his career path is oriented towards the environment and sustainability. His interest in this new area of work is hampered by lack of personal finance to support further study for himself. Lack of full study support for him by the Municipality (pay for self and claim later) does not encourage or facilitate his learning pathway, as reported in section 4.4.3.3 above). The inefficiency of the system seems to be a barrier. Being in his current occupation, however, he finds himself attending courses related to his occupation as supervisor for waste management. These courses are also driven and directed by the strategic objectives of the Municipality, namely the "Batho Pele" ['People First'] principle which aims to enhance service delivery and serve the community better. This effort appears to be in line with Doc-01 (Makana Municipality Environmental Education and Training Strategy) which states that, *"...local government employees working with environmental management issues are required to ensure that a) interdepartmental communications are strengthened and that b) communications with the public are conducted in participatory ways..."* (p. 29).

Relating to the *type* of education and training required, the document further adds that,

... most environmental management legislation required includes a need to 'transmit knowledge, raise awareness and build capacity' for participation in environmental management. This presents a weak framework for environmental education and training as knowledge transmission and awareness raising have long been proven to be ineffective in broadening participation. More in-depth, participatory approaches to education and training are required... (p. 29)

Such participatory skills are necessary and important at supervisory level, shown in Hamaamba's (2004) research, as supervisors are required to include a public participation and community involvement processes in their work. Such training, however, does not seem to be on offer for strengthening the occupationally directed learning pathways of the supervisors, as revealed in section 4.4 above. This is despite the NQF having a commitment to *integrating theory, practice and work experience* in the training on offer (Doc-06).

One of the views expressed by some of the supervisors is lack of study support/assistance in terms of bursary offers. S3 mentioned that a bursary system could make it possible for them to improve their service delivery, especially since this has been identified as critical. As he mentioned, the current system now is pay yourself and claim later. The training policy of the Municipality (Doc-04) stipulates that the Makana Municipality shall provide study loan assistance to its employees to enable them to obtain formal qualifications suitable for use in their scope of employment. This is subject to a number of set conditions, but is not explicit about paying for self and claiming later. What is clear is that there is a limit of R10 000.00 per year for study assistance which may not be sufficient to cover all costs. The importance and necessity of funding for sustainable development practices is further highlighted in the ESSP by the statement that there is a need to *"...review the current allocations of skills development funding to ensure adequate allocation of funding for adequate bursary funding to facilitate skills development in scarce skills areas, and to facilitate lifelong learning linked to career path development in scarce skills area... (DEA, 2010, p. 36).*

This is also prioritised by the Makana Municipality LEAP document (Doc-01), which identified waste management as a scarce and critical skill related to the environment, a skill important for S3 in his occupation. It would seem that more attention needs to be given to how to facilitate learning pathways for such scarce and critical skills in the system of skills provisioning, including how funding is allocated for the training of scarce skill areas in workplaces such as Makana Municipality.

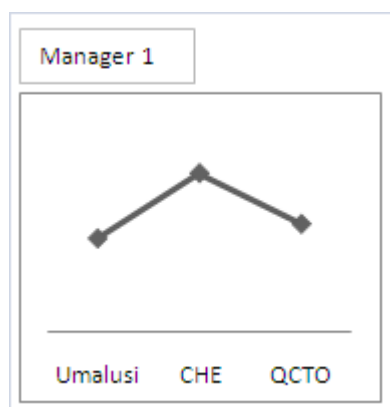
4.5.3 Summative perspective on supervisors' learning pathways

From the above discussion it would seem that, as in the case of workers' learning pathways, policy and strategy is not 'playing out' in practice, especially with regards to furthering the learning pathway and career development opportunities of supervisors responsible for sustainable development practices in the Makana Municipality. This is both at a national policy level (i.e. the QCTO governed education and training system is hardly reaching the Municipality effectively), and at local policy and strategy level (i.e. the local policy intentions for furthering career development and learning pathways towards sustainable development) are not being realized in practice. This leaves supervisors responsible for sustainable development practices with 'zigzag' options for learning pathways development, inadequate access to available training opportunities, or inadequately funded learning pathways.

4.6 Learning Pathway Stories of Managers

4.6.1 Manager 1 (M1)

4.6.1.1 Introduction of the person and their early education history



M1 is a black male Environmental Manager at Makana Municipality. He has occupied this position for four years. He went to school mainly in Grahamstown, and completed his Matric at Nathaniel Nyaluza High School. Here he took six subjects which included Xhosa, English, Afrikaans, Geography, History and Biology. Post high school he completed a B.A. degree, majoring in Psychology and Geography at Rhodes University which he started in 1984 and completed in 1990. He then went to teach

in the former Ciskei [a former Bantustan homeland under apartheid] without a teaching qualification, and that made him decide to come back and do his HDE (Higher Diploma in Education). He enjoyed Rhodes University so much that he decided to immediately continue and study Honours in Geography. In 2005 he then decided to study further for his Masters at the University of Cape Town as a full-time scholar, at the Institute of Plant Conservation in the Botany Department qualifying with a Masters in Botany.

His sustainable development responsibilities include: To ensure and coordinate full integration of environmental considerations, protocols and best practice into all municipal activities. This is a strategic section providing environmental leadership to the Municipality and the community.

His learning pathway diagram shows that he has a full high school formal qualification under the Umalusi subcategory. He has a Masters degree qualification under the CHE subcategory and an advanced certificate in sustainable development related to his work under the QCTO subcategory.

4.6.1.2 Learning pathway decisions and experiences related to sustainable development practices

M1's learning pathway shows that he has moved between two different fields of study to propel his learning pathway forward. In higher education he started with geography and psychology as two majors, he subsequently moved to education, and finally moved into an environmentally related discipline via his Honours and Masters Degrees (Geography and Botany). His learning pathway shows a zigzag learning pathway pattern. The Geography and Botany post-graduate qualifications, however, solidified his learning pathway related to sustainable development practices.

A number of external experiences seem to have influenced how M1's learning pathway was shaped. Some of these experiences include, serving as an environmental consultant with coastal and environment services, attending a course in Environmental Impact Assessments in 2000, being a member of the Environmental Education Association of South Africa, and attending an advanced

training programme on Local Environmental Management in Urban Areas in Sweden, Stockholm in 2010.

The LEAP document serves as a guideline for his sustainable development practices, projects and programmes and appears to be paving a good strategy and direction for M1's learning pathway within the workplace. Personal drive and interest also indicate a strong influence on M1's learning pathway. He continues to study beyond his Masters and is currently registered for a Post Graduate Diploma in Environmental Engineering at Wits University.

Practical experiences on issues related to the environment and a close informal mentorship provided by Lawrence Sisitka, an Environmental Management and Training consultant in Makana, seems to have contributed further to the shaping of M5's learning pathway. The legal requirement by SALGA for managers to attend Financial Management for non-Financial Managers courses by 2013 also adds towards the development of M1's learning pathway although not directly related to sustainable development. However, such competences are indispensable for the effective management of all programmes, including sustainable development programmes.

4.6.1.3 Issues / Interesting Aspects / Complexities related to learning pathways and sustainable development practices

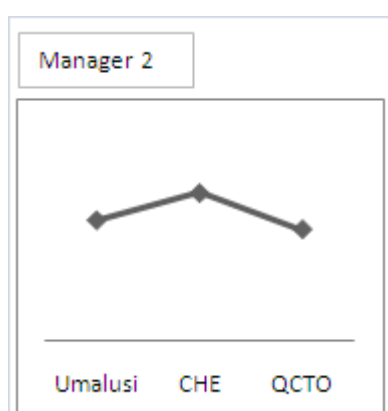
Tension: There appears to be constraints on supporting officials to study further. M1 gives an example and cites that *"... for instance for my Wits University Environmental Engineering Postgraduate Diploma, I am paying R16 000 out of my own pocket and they are not paying my flights and accommodation"*.

Access: Mismatch of skills show complexities in how resources and training is managed. These consequently influence access and articulation of progress in learning pathways relevant to sustainable development in key occupations. Employees are sent on training that has nothing to do with their area of work. As M1 explained, *"fellow workers are complaining about mismatch of skills enhancement or skills training where they (Municipality) would suggest that you go and do a course on hygiene when they are not interested in doing that."* It is noted that these generally have no relation to the occupation concerned.

Mentoring and guidance: From the above it is clear that the LEAP document provides important guidance for M1 on his learning pathway, while he has also benefitted from informal (external) mentoring. It is interesting that such mentoring is not provided internal to the Municipality as part of occupationally directed learning and career path development.

4.6.2. Manager 2 (M2)

4.6.2.1 Introduction of the person and their educational history



M2 is a white male manager responsible for Environmental Management and Recreation in the Makana Municipality. He has occupied this position from 2007 to the present. He went to school in the Western Cape and matriculated at Hottentots Holland High School in 1970 in Somerset West. At this high school, he took subjects which included Maths, Science, Biology and Geography besides languages.

After leaving school he completed his military training because this was during the old South Africa and this was compulsory for white men. He later joined the then Department of Forestry and studied at Saasveld Forestry College in the Western Cape. He went to College instead of University where he did his first National Diploma in Forestry which he completed in 1975. In 1981 he completed his second National Diploma in Horticulture, at Cape Technikon and in 1984 completed his third National Diploma in Parks and Recreation Management, also at Cape Technikon.

M2s sustainable development practices and responsibilities include: Managing, directing and coordinating the activities of the Parks and Recreation Division in order to provide professional and effective service delivery to all the residents of Makana Municipality.

M2's learning pathway diagram shows a Matric qualification under the Umalusi subcategory. This is followed by three National Diplomas (all clustered at the same level) deceptively showing no progress under the CHE subcategory. All three National Diplomas related to his work on sustainable development under the QCTO subcategory.

4.6.2.2 Learning pathway decisions and experiences related to sustainable development practices

M2's learning pathway indicates a solid foundation in environmentally related study fields, starting from High school through to his current key occupation. His choice of high school subjects show to have formed a solid foundation for his further studies, and has had relevance to his workplace responsibilities for sustainable development. At higher education level, he commenced with a National Diploma in Forestry, followed by National Diploma in Horticulture and thirdly a Diploma in Parks and Recreation Administration. These show his interest in increased specialization in the area of Municipal Parks and Recreation management. He studied for the first Diploma as a fulltime student. For the second and third diplomas, he studied and worked at the same time. As he says, he used to travel to the Cape Technikon three times a week working and studying at night in order to complete his studies. Since working for Makana Municipality he has been on many different types of training programmes which apply to council work (occupationally directed). However, these are classified as certificates and not qualifications and are also not related to sustainable development. He confirms,

...I have never done any additional diplomas or courses related to the environment since being in the municipality because I have quite a lot of knowledge in Horticulture, Forestry and Parks and Recreation Administration. Other training is in-house, like management training...

All three National Diplomas that M2 acquired are all on the same NQF level, level 6, shaping a uniquely individualised horizontally specialized learning pathway. It portrays an impression of no mobility or progression from a vertical progression point of view, but an interesting horizontal 'depth' specialization which is increasingly occupationally directed.

It is also interesting to note that M2's learning pathway was shaped by external influences long before he worked for the Municipality. Although training is provided within the Municipality, it is only for certificate purposes and gives an impression there is no continuous vertical movement after higher education, although training programmes (e.g. the management training) are occupationally directed, adding to the horizontal specialization that M2's learning pathway shows. Gathered knowledge, past experience and an insightful set of choices focused on

horizontal specialization in relation to his occupation, appears to be the main factor shaping M2's learning pathway.

M2 says for programmes related to sustainable development practices, they (his department) are busy with conservancy development. He indicates that there are other greening projects which they are developing in the communities at the moment. He says *"there are four big projects running at the moment, within one project, it's a ten million project where we are developing four parks, that also in a way is making communities sustainable"*. He mentions that the training that he received previously during his years of study and his background helps him with the necessary skills for these practices.

M2's mentorship experiences indicate a solid base of his learning pathway on the sustainable practices. When asked who his mentor was, he mentions that when he was in Cape Town, his mentors were his seniors in Forestry, Parks and Works. Otherwise what helped him most was that he belonged to an Institute of Parks Environment, and Recreation Management. He adds,

...I still belong to them, they are a professional body that assists us with our operations. So, I am a member, I used to be the chair, chairperson of the Eastern Cape for eight years. If I can call it that, that has been my main guiding body. I don't have a specific mentor. I have colleagues at Rhodes University who have similar qualifications to me and we assist each other a lot...

4.6.2.3 Issues / Interesting Aspects / Complexities related to the learning pathway and sustainable development practices

Experiences of the system: As in the case of M1, M2 reflected that the centralised budget for training seems to create a barrier for access to funding for purposes of learning.

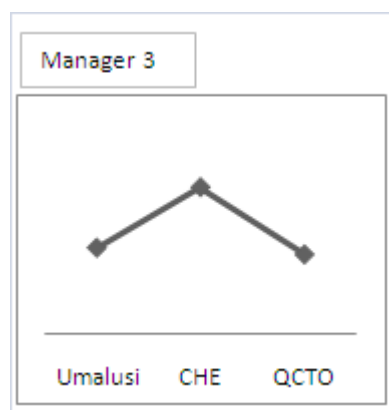
Quality: Individuals responsible for training and development of employees are generally said to be inefficiently capacitated in carrying out their duties and this appears to affect the quality of work. This also adds to issues of disgruntlement and tension among employees as these are access barriers affecting learning pathways. M2 indicated that he struggles with these issues, not only for his own learning

pathway development, but for those under his management who he tries to support with learning pathway development.

Mentoring and guidance: As in the case of M1,M2 also had sources of guidance and mentoring. In his early career, he relied on senior colleagues for mentoring, and later on in his career M1 drew on a professional association (also providing leadership to this association), and colleagues involved in similar practice in an institution nearby (Rhodes University) for mentoring and guidance.

4.6.3 Manager 3 (M3)

4.6.3.1 Introduction of the person and their early education and history



M3 is a white female. She is the Director of Local Economic Development in the Makana Municipality, a position she has occupied for four years. She went to school at the Afrikaans Hoer Meisieskool [Girls High School] in Pretoria and matriculated in 1976. She took Afrikaans, History, Maths, Science and Biology as her Subjects. After high school she enrolled for her BA Social Work degree at the University of Pretoria, and after that qualified with an honours degree in Medical Social Work at Stellenbosch University. After two years she did a Masters in Social Work at the University of Pretoria. Six or seven years later she started with her Master in Business Administration at a Business school in the Netherlands and qualified successfully. This was followed by a Diploma in Industrial Journalism and an Estate Agent qualification.

The sustainable development practices she is responsible for include:

- Provide strategic leadership on how to stimulate economic growth and development in the Municipal Area
- Ensure that programmes and projects are implemented to stimulate economic growth and development
- Network and identify opportunities for economic growth and development
- Establish partnerships to stimulate economic growth
- Ensure funding proposals are submitted to obtain external funding

- Facilitate and manage strategy and policy formulation
- Human Resources Management
- Monitoring and evaluation, as well as performance management on relevant projects.

Her learning pathway diagram shows that she has the highest school qualification (Grade 12) under the Umalusi subcategory. She has a Masters degree and a Diploma under the CHE subcategory. It further shows related experience under the QCTO subcategory.

4.6.3.2 Learning Pathway decisions and experiences related to sustainable development practices

M3's learning pathway shows that she did not study anything directly related to sustainable development or anything that is environmentally related. Her original focus, from B.A to M.A was solidly in the field of Social Work. The first shift started with the second Masters in Business Administration, followed by another shift to a Diploma in Industrial Journalism and following that another shift in learning pathways direction with a certificate in Estate Agency. The varied movements and varied fields of interest gives shape to a complex, self directed learning pathway.

Originally M3 studied of her own accord, shaping her own learning pathway but now the focus and decisions on what to study are occupationally directed and required by legislation. She mentions that at the moment there is a legal requirement that all section 57 employees must do a certificate programme in management development (CPMD) for municipal finance and be qualified by 2013. For this the Municipality pays and they are reimbursed by the Local Government SETA.

Within her occupation in the Municipality, M3's main focus is strategic management of issues related to sustainable development practices. She drives projects at a strategic level, where her strategic skills and knowledge acquired over the years are most influential. She explains,

...Because I drive them on a strategic level you need networking and managerial skills, you have your technical people that have the know-how, and you need the

skills to see where the whole project is going and you need a project plan and people to assist with its implementation ...

She explains that what enables her to do her job as best as she does is the skills she acquired from her Social Work days, and from her MBA, as well as other experience she has gained over the years. This background assisted her a lot with planning skills. She states,

...You know when you do community development there is a whole planning process, especially involving stakeholders and ... also I think in terms of management skills assisting me in how I deal with people, how to motivate people, how to do monitoring, and obviously my MBA assisted a lot in terms of other skills, in Human Resources Management, in terms of strategic management and financial management because you need all of that when you are on this level. And then I have, in my working career, also done a lot of facilitating in strategic planning, it gives you an overview, and then it also helps you to think about where we are now, where do we want to go and what are the things we need to put in place, so that helped me quite a bit...

As is the case with M1 and M2, M3's mentors seem to have contributed towards shaping her learning pathway. When asked about her mentor, she beams with delight and she says, *"I learnt quite a bit from her, also about networking and how to plan, and I would think, how to analyse, that is very important"*. She also recalls a consultant, whom she says was a service provider for the Strategic Department she was responsible for at the time. She lights up stating that *"... she was an excellent mentor, in terms of thinking differently, looking at the bigger picture, and thinking out of the box"*.

Currently, more than having a mentor, she attends workshops and seminars to keep her knowledge and skills up to date. She confirms that she actually learns a lot from them.

4.6.3.3 Issues / interesting aspects / complexities related to the learning pathway and sustainable development practices

Tensions: M3's seniority in her position appears to have constraining elements that affect studying and working at the same time. Because of the workload that comes with this key position it is not always possible to be granted study leave. She mentions that her frustration is that she does not know how she is going to complete

the course which is a legislative requirement, because most of the time when she wants to have study leave, her request is declined.

Access: Looking at M3's job description and her explanation related to her occupation, it is noticeable that she has multilayered responsibilities as seen in section 4.6.3.1 that are related to having strong and solid knowledge and practices related to sustainable development. She has not, however, completed any specific training related to sustainable development planning or practice, and rather draws on other experience and training in addressing these issues. Access to various opportunities seems to shape her learning pathway.

4.6.4 Manager 4 (M4)

4.6.4.1 Introduction of the person and their early education and history



M4 is a black male manager for water and sanitation in the Municipality. He was originally appointed in 2010 as a water technician. In January 2012 he was acting manager for water and sanitation, and in March 2012 was officially appointed water and sanitation manager. He went to school in the Eastern Cape, in the Amathole region at Jongile Nompondo High School. At High school he studied Maths, Science, Agriculture, English, Xhosa and Afrikaans. Post high school he went on to do a Diploma in Civil Engineering at the Vaal University of Technology. He is currently studying part-time towards a B.Tech in water engineering. His other formal training qualifications include: Infrastructure Asset Management, Expanded Public Works Programme NQF 5 courses on Water and Wastewater treatment systems. His informal training covers water quality management for Municipalities.

His sustainable development practice responsibilities include: Managing water and sanitation in the water and sanitation Department.

His learning pathway diagram shows the full completion of a Grade 12 qualification under the Umalusi subcategory. The CHE subcategory shows a higher education qualification, a National Diploma which is also related to sustainable development. The QCTO shows further relevance of qualification in sustainable development.

His learning pathway diagram shows the full completion of a Grade 12 qualification under the Umalusi subcategory. The CHE subcategory shows a higher education qualification, a National Diploma which is also related to sustainable development. The QCTO shows further relevance of qualification in sustainable development.

4.6.4.2 Learning Pathway decisions and experiences related to sustainable development practices

M4's learning pathway decisions and experiences have been consistently shaped and entrenched in the environmental field which is relevant to sustainable development practices. The choice of subjects in high school, namely combining Science, Maths and Agriculture established a linear and seamless learning pathway allowing for a continuous movement to a civil engineering diploma. This appears to have better prepared him for understanding sustainable practices in the water sector. His current studies for a B.Tech, will allow him to specialise in water engineering thus offering him a smooth pathway from one level to another in the same field. The principle of mobility and progression is further articulated in his promotion from water technician to water and sanitation manager also the shaping of his learning pathway followed. This presents a good alignment between vertical occupational direction and progression and longer term vertical unfolding of his qualifications-based learning pathways direction, one of the few found in this study.

However, what is also significant in this case, is the manner in which his seemingly smooth learning pathway is shaped by a combination of his formal qualifications and informal qualifications which are occupationally directed and related to sustainable development, especially his core occupational tasks related to water and sanitation management. This included courses in water conservation, and demand management and safety planning. *"The demand management is about managing your water and conserving it so that you can manage your distribution, that way there is no challenges of water shortages"*, he explains. He adds that he has completed courses for water and waste treatment processes too. These were run by and paid for by the Department of Water Affairs because it is their responsibility to fund and capacitate Municipalities. Other courses he attended were facilitated by different institutions like Rand Water and the University of Stellenbosch. It seems therefore that the supply of training programmes and associated funding for training programmes for water and sanitation management are better provided for than other forms of sustainable development practice in the municipality context.

The learning pathway experiences acquired beyond the formal qualifications indicate that they are occupationally directed and are also a requirement from the

National Department in order to ensure compliance with relevant legislation. Significant too, is that they are also funded by this institution (the national department) which ensures that they can occur.

Deciding to work on various projects related to sustainable development within the Municipality also seems to be a contributing factor to a strong learning pathway experience in M4's key occupation. When asked what sustainable development projects he was involved in, he mentioned that it was water conservation and demand management. This is a three year project also funded by the Department of Water Affairs. He reflects back and explains that,

... actually it goes beyond three years because you still have to maintain it. It is not a once off thing because it is a lifetime project. Also, we are dealing with the project of blue and green drop, the one that deals with water quality and waste water quality monitoring so that you can ensure compliance. Those are the projects I am currently involved in full time...

Knowledge and skills acquired in previous jobs have also contributed to his learning pathway, enabling him to work on the sustainable development projects. He says,

You need to be trained in water related courses or workshops especially if you gonna do the water demand, because water demand on its own is a speciality. Then if you doing blue and green drop you need to be trained on water quality management because that alone is a speciality. Let alone that you have that civil engineering degree which is standing there [as an important background qualification].

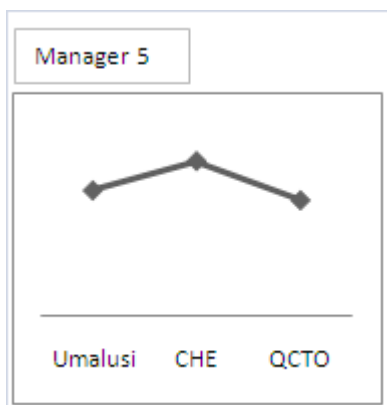
4.6.4.3 Issues / interesting aspects / complexities related to the learning pathway and sustainable development practices

Mobility/progression: The term for which he was acting as Manager in the key occupation stood M4 in good stead, adding value to his career progression. This factor influenced his access to an upward progression from water technician to water and sanitation manager in the same department. As he put it, *"I am no longer a technician, I am assuming tomorrow as Manager, Water and Sanitation, so it all falls under me, I'll manage water and sanitation"*. [M4 has been acting manager since Jan 2012]. As indicated above, there seems to be an interesting dynamic associated with his learning pathway where initial qualifications (which are appropriate to the occupation) intersect with further study on this formal learning pathway, as well as relevant short courses that are funded and in adequate supply to

sharpen specialist skills needed for the specific occupation, and vertical progression and promotion in the occupational context.

4.6.5. Manager 5 (M5)

4.6.5.1 Introduction of the person and their early education history



M5 is a white male manager for Environmental Health and Cleansing Services in the Makana Municipality. He went to school at Hoer Volksskool, in Graaff-Reinette. The subjects he took in High school included Afrikaans, English, Maths, Biology, Woodwork and Agriculture. After High school he went on to study to become an Environmental Health Practitioner, and completed a three year Diploma in Public Health at the

Cape Technikon.

His sustainable development practice responsibilities include ensuring that everything goes according to plan for the environmental and cleansing section. He also manages the people in his section and ensures there is sufficient funding and compliance with supply chain management related to sustainable development.

His learning pathway diagram shows he has a high school qualification (Grade 12) under Umalusi. The CHE subcategory shows that there is a higher education qualification (National Diploma) which is relevant to sustainable development in the QCTO subcategory.

4.6.5.2 Learning pathway decisions and experiences related to sustainable development practices

The choice and decision of subject combination that M5 took at high school shaped his learning pathway and streamlined it into the environmental field which is relevant to sustainable development. His current key occupation as Environmental Health and Cleansing Service Manager affirms this as his school subjects offered him access to the occupationally relevant Diploma that he completed after school.

The courses that M5 attended while working for the Municipality are generally occupationally related in-house workshops leading to a certificate such as effective management, and disciplinary hearing procedures. He adds that,

...We are always busy on one or the other things on management because we've got performance system management that we need to put in place, so the section 78 people are honoured. Also, at this stage we are concentrating on the budget because that is very important for the Integrated Development Plan (IDP)...

These entrench and support the learning pathway of his key occupation, and provide him with the necessary generic management competences for the role that he plays in the Municipality.

M5's experiences and decisions seem to also revolve around working on sustainable development projects. These seem to enhance and empower his knowledge and skills. When asked what sustainable project he is involved in, he explains in detail that *"... council formed a private partnership with Masihlule recycling project, and one of the stakeholder partners is the Department of Social Development and I was and am also on the board"*.

The wide range of knowledge and understanding on various pieces of legislation, especially Acts related to environmental health and waste management appear to be a necessary ingredient and requirement in order to enable M5 to carry out his work on sustainable development projects. The skills he acquired when he studied as an Environmental Health Practitioner also seem to shape and form part of his learning pathway experience. He has, however, not been offered training on new environmental and environmental health related legislation, despite this having changed much over the past few years.

4.6.5.3 Issues / Interesting Aspects / Complexities related to the learning pathway and the sustainable development practices

There are issues of unscheduled meetings related to sustainable development practices which seem to create constraints in the daily functioning of M5's work. He laughs with humour as he adds to the list of his job description that he also attends *"a lot!!!! [emphasis] of meetings"*, which take up his time and disrupts his daily plans and schedule.

Issues of resource inefficiency such as red tape in the process of supply chain management emerged as further constraints and blockages that affect sustainable development practices in his work. M5 adds that in addition to his job description, *“I am in charge of the budget, I need to see there is sufficient funding, done the correct way, and we comply with the supply chain management, things like that”*. He adds that it is quite difficult with a lot of obstruction, a lot of red tape.

The Human Resources department in the Municipality appears to have constant constraints which do not allow for smooth career pathing / progression or learning pathways development. When asked whether the Municipality has a Workplace Skills Plan, M5’s immediate response was,

You need to talk the Skills Development Officer. There is a Skills Development Facilitator ehh... but I don’t know what they do. It does not come to us on the ground. Every second year they come and ask us to fill in a career pathing questionnaire. Each and every worker, fills in the forms after a year they come and ask us to fill it again and I just said, I refuse to fill in the forms, you are wasting our time, because it is a lot of time that we invest ehhh...

He further adds that *“they are giving us big bottle neck with lots of things ehh... and there is no excuse to say that there is no sufficient manpower because they’ve got more manpower than they had previously but less work is getting done”*.

The key issue in the form of relevant knowledge for sustainable development as a key occupation in this particular case emerges. M5 may not have acquired further formal qualifications after the diploma, but the quality of knowledge and skills that he obtained from high school and his public health diploma seem to have provided a strong foundation for his occupation, and seem to stand him in good stead. The accumulated years of experience in his key occupation have contributed substantively to shaping his learning pathway and his career.

The previous good quality education foundation appears to be an added advantage for M5 but with emerging new knowledge and practices associated with sustainable development practices (e.g. new legislation), existing knowledge may be challenged. The efficacy of the workplace skills planning system to provide for ongoing up-to-date knowledge and skills seems to be a constraint here, as are more general inefficacies in the systems of operation, as reflected by M5’s views on what affects his sustainable development practices.

4.7 Managers' Learning Pathways and Policy and Strategy Documents

4.7.1 Systems factors (Educational background)

All five managers have either national diplomas and degrees or only national diplomas. The lowest qualification amongst the five is a National Diploma and the highest an advanced qualification after a Masters degree. This is a reflection of unevenness in knowledge and capacity related to sustainable development, although all are working at the same level in the category of managers (middle management and senior management). Doc 05 (the Environmental Sector Skills Plan for South Africa) reflects this pattern, showing the significance of the National Diploma for providing sustainable development technical and management expertise in local government sustainable development practices:

...National Diplomas and degrees are the biggest contributors to the environmental sector in terms of tertiary qualifications involving 'environmentally aware' graduates. The second largest contributor is the honours qualifications, the next most important contributor is the masters degree ... (p. 30).

Two of the managers' learning pathways (M2 and M4) reveal interrelated experiences where their qualifications pathways (school subject choices, and post-schooling qualifications) have prepared them well for their specific occupations, which are *strengthened* by in-service accredited and government funded training that is *occupationally directed* in such a way that their ability to manage sustainable development practices improves. Perhaps this reflects the ideal in practice which is expressed in the NQF system document (Doc-06) which indicates that the NQF is intended to provide for “...a National Qualifications Framework with three inter-related but distinguishable learning modes or typical pathways: discipline based, career-focused/general vocational, and occupational context based”. From these learning pathway stories, it can be seen that these should not be seen as isolated systems, but should be considered as *integrated learning pathway options and opportunities* that can be developed in ways that can strengthen occupationally directed work and learning over time. It should be noted that in both cases where the learning pathway options and opportunities were more coordinated and ‘seamless’ in relation to the occupational interests of the manager, they were also more focused on their occupational direction, and had stronger knowledge and skills to implement sustainable development responsibilities and practices. This is an

important finding for future planning related to sustainable development learning pathways in municipalities.

The learning pathway stories of the other managers show more ‘haphazard, per chance’ or flexibly self-constructed approaches to learning pathways construction for sustainable development. For example, the issue of flexibility is reflected in how M3’s learning pathway is shaped. She switches from one pathway to another. This, as shown in her case, is not necessarily a ‘bad thing’, as also expressed in the NQF document (Doc-06) which states that:

...Learning pathways cannot be sealed off from one another, as though a learner is fated to stay on one route once a choice has been made. The principle of flexibility must ensure that links are available for learners to move from one pathway and be afforded the opportunity to acquire additional learning that would enable the learner to make an efficient transition...

This, as in the case of M3, brings wider skills such as management and social planning skills to the field of sustainable development. What was also interesting is that in the case of M3, access opportunities for sustainable development training became more occupationally directed and were not as flexible as previously as her responsibilities expanded. Here, she reported that workshops and seminars related to her occupation and as required by legislation were very important. The nature of ‘occupational training demands’ as reflected by M3 (and by M2, M4 and M5’s experiences) is in sync with the QCTO pathway document which states that “*learners in this pathway, both young and adults, will make the most specific and least flexible choice*” (p. 10). This shows that the occupation and its development and changing demands itself begin to shape the learning pathways of those employed in the occupations.

4.7.2 Mobility/progression

With regards to environmental technical skills, the LG SETA sector skills plan reveals shortages of environmental technicians “... *The local government SETA indicates scarcity of over 300 environmental and water engineers*” (Doc-05, p. 20) M4’s learning pathway reflects this issue of scarce skills particularly in water engineering, a skill already identified in the LEAP document of Makana Municipality as scarce. In fact this is identified as a severe scarce skill which is critical to service delivery as reflected in this statement from Doc-05 “*Municipalities are short of water, sanitation, air quality and waste management*

specialist technical skills, and capacity for planning and implementation of sustainable human settlements and/or sustainable rural development” (p. 20).

The issue of scarce skills in this case overlaps with the principal thrust of the training policy in Makana Municipality which rests on career promotion and progression. M4’s progression from water technician to water and sanitation manager in the Municipality appears to be in agreement with the training policy in place stipulating that,

... career progression shall have to be developed within the strategic priorities of Makana Municipality, however, this does not need to be misconstrued with promotion but rather as an instrumental and enabling tool for easy movement within the organisation...

An interesting aspect noted in this case, is the distinction made between promotion and progression and on this point, the training policy makes it clear. M4 is promoted, but this does not mean mobility or progression on his learning pathway, although in his case, the paid for short courses and his access to undertaking a B.Tech degree help to strengthen his learning pathway *in tandem with* his career progression. There is silence in the training policy on the length of acting capacity before promotion and the implication of mobility or progression, and what the relationship is between this and training provisioning. It seems therefore that this is not carefully considered in the training policy.

Bringing these aspects of career advancement possibilities together with learning pathways progression through education and training appear to more effectively address the objectives of the NQF which are to contribute towards personal development, facilitating access, upward mobility and progression. While these objectives are achieved in the case of M4, lack of consistent planning for the ‘match’ between education and training linked learning pathways and career trajectories, the promotion counteracts this by creating a vacuum (vacancy), another severe skills gap (water technician). On this point the ESSP research shows that there is also a potential link between instability in Human Resources support services, management and leadership, and effective recruitment and filling of vacancies in other areas indicating the systemic impact of this issue of capacity and that Management capacity to support the use and development of these skills in the workplace is critical. As shown in more than one of the managers’ cases reported in

section 4.6 above, there is frustration associated with the inefficient functioning of the human resources support services and the skills planning facilitators' roles in creating enabling environments for sustainable development learning pathways.

4.7.3 Access

As shown in section 4.6 above, the managers' learning pathways appear to be shaped by various factors, namely, individual decision making, organisational factors, and related access opportunities within the Municipality. Two very important factors facilitating access opportunities for the managers in relation to the training policy state that:

The Makana Municipality shall:

9.3.1 Ensure that education and training provision is within the identified career paths

9.3.2 Assist employees to arrive at a correct decision to choose the career path and opportunities (Doc-04, p. 4).

As shown in section 4.6, study support allows the managers opportunities to study further related to their key occupations on sustainable development. For example, M1 is studying towards a post graduate diploma in environmental engineering, while M4 is studying towards a B.Tech. Being able to access the study opportunity is an enabling factor in learning pathways construction. This is in line with the paragraph in the training policy stating that: *"The Makana Municipality shall provide study loan assistance to its employees to enable them to obtain a formal qualification suitable for use in their scope of employment"*(Doc-04,pg6). However, as reported on in section 4.6 above, this system is not entirely satisfactory as employees have to up-front the payments for such study, and the study loans also appear to be inadequate; i.e. the bursary system is not ideally enabling.

Study leave is also a factor of access enabling the managers to pursue studies related to their occupations. However, when denied, as in the example of M3 it becomes a constraining factor. On this aspect the training policy outlines that the council shall grant employees pursuing an approved course of study leave regarded as special leave (Doc-04). In this case the implication of access to study leave denied is learning pathway denied.

4.7.4 Experiences of systems factors

Emerging from the data reported on in section 4.6 above, there appear to be systemic inefficiencies impacting on capacity development and learning pathways development, particularly related to supply chain system management and Human Resources services related to training planning and delivery, which creates blockages in the managers' learning pathways (and those of workers and supervisors as shown in sections 4.2 and 4.4 above). Lack of leadership, and lack of decision making by those in charge affect the supply chain system as a core function for the managers. This was strongly expressed by M5 when he articulated that “ *it is quite difficult with a lot of obstructions, and a lot of red tape*”. Adding to this, M3 states that “... *look we do skills development in the department (her section) but not according to the skills plan, because we never get feedback from HR whatsoever, so we do our own*”.

The ESSP (Doc-05) identified a number of key areas of skills demand which include leadership skills in order to help address this challenge. On the area of skills to develop and expand the sector, it included Environmental Education and Training skills to ensure that “... there is adequate capacity to deliver environmental training to an emerging and rapidly growing sector”. This area is important and has shaped a solid learning pathway for a manager like M1, who is following the LEAP document as a guide. The experiences emerging from all the projects he is involved in related to sustainable development; namely, training of waste management with youth in the community, and coordinating the SUS project, as well as planning for skills development of workers, are shaped by the Environmental Education and Training Strategy of the Municipality (Doc-01). Full implementation of this strategy is, however, hampered by inefficiencies in the human resources services section, as shown by the data in sections 4.2, 4.4 and 4.6 of this study.

4.7.5 Access

M3's learning pathway appears to have been strongly shaped by strategic planning experience from her previous work experience. Being in a leadership and decision making position within the Municipality has further allowed her access opportunities on sustainable development. This is a skill the Municipality needs most and identified as such in the ESSP which states that “... *More strategic*

planning and provisioning for re-skilling and updating of capacity in key areas where critical skills needs were identified is needed”.

M5’s formal qualification ended at Technikon level. Following his learning pathway within the Municipality it is possible to see that it is based more on years of experience and courses attended but this has not supported him to extend his qualifications in waste management. Waste management has been identified as a critical skill in the LEAP document (Doc-01), and it would therefore seem in the Municipality’s interest to seek ways of supporting M5 to further his knowledge of waste management through an expanded qualification linked learning pathway, but as shown in the data in section 4.6 above, he does not have much faith in the systems that are meant to assist in this way.

Both the ESSP (DEA 2010, Doc-05) and the Makana Municipality Environmental Education and Training Strategy (Doc-01) identify updated environmental law and policy as critical skills gaps for supervisors, managers (middle and senior) yet such training is not being provided in Makana Municipality. This again seems to be linked to inefficiencies in putting the strategies into practice through the available workplace skills planning systems, creating access problems for those who need to update their skills in these areas.

4.7.6 Job descriptions, occupational demands and activities

As indicated above, the occupational demands and the job description of employees seem to play an indirect role in shaping the managers learning pathways. Attending meetings related to their occupations, and implementing policy and strategies enable them to do their job better. An interesting aspect raised by one of the managers, however, was that attending meetings which are constantly unscheduled, can be a constraint in achieving goals related to their job descriptions.

It was also clear from more than one managers’ discourse above (reported in section 4.6) that involvement in projects was a strong enabling factor for shaping learning pathways. The Municipality seems to, as part of its operations, be involved in implementing many different projects and programmes. There are, however, no clear plans on what skills development programmes should accompany the implementation of such projects and programmes beyond general management and financial management training. The sustainable development practices (which are

the core of the projects and programmes) are not supported by specific skills development programmes and managers 'learn on the job' what needs to be done and how. They all cite these as valuable learning processes, which could also be further maximized for sustainable development learning pathways development in the Municipality, perhaps for all levels of occupations.

The Human Resources system within the Municipality appears to create blockages/constraints at various points which more than serve as an enabler for the managers to do their work effectively and allow smooth career pathing/progression in their learning pathways.

4.8 Conclusion

In this chapter, I have provided a detailed presentation of data with extracts from the career stories as experienced by the workers, supervisors and managers. The richness of data presented has allowed for a thick and in-depth description. Overall an interesting picture emerges on the learning pathways related to sustainable development in the Makana Municipality, with workers most disempowered to make learning pathways' decisions. Supervisors and managers appear to be more able to make learning pathways' decisions, but in both cases, these are hampered by systemic issues, which I discuss in more detail in the next chapters.

CHAPTER 5

DATA PRESENTATION –LAYER 2 [EVENTS]

5.1 Introduction

This chapter presents findings emerging from the second layer of analysis focusing on training events, available training opportunities, skills development planning, workplace skills planning, mentoring, sustainable development projects, knowledge and skills and other issues related to learning pathways. I first focus on the category of workers, followed by the supervisors with the managers as the last category.

5.2 Events⁴ Influencing Workers' Learning Pathways

5.2.1 Policy

According to the Makana Municipality Environmental Education and Training Strategy (Doc-01) a Workplace Skills Plan must be in place. This is also a legislative requirement of the National Skills Development Act of 1998 (RSA, 1998). Employers are required to comply with the Skills Development Act of 1998 (ibid.) which requires employers to use Workplace Skills Planning as the mechanism to unlock resources from the skills levy, and to provide relevant training to employees. The experiences shared by the workers reveal high levels of frustration on the absence of effective skills development planning and in most cases a complete absence of training and development. This is reflected in section 4.2, and by comments made by some of the workers as shown below.

5.2.2 Training opportunities

When asked about training opportunities and if there had been training provision, WA2's response was, *"they have always said there will be training, but none so far, even as casual workers. They made us fill in forms but nothing has happened"*, and *"we have never been trained on ABET"*. Regarding the experience of training of casual workers, WA5 says, *"I started working here in 2006 as a casual worker, even as a permanent employee since 2007, I have filled in forms but have never been trained"*.

⁴ Note that events as used here follow the meaning in Bhaskar's ontological framework (see section 2.6 & table 2.1).

The training policy seems silent on this point and it is not clear whether provision is made for skills development of casual workers or not. It instead only stipulates the point that *“... this policy shall apply to all employees either full or part time including to the accredited and non-accredited capacity building programs provided by / and or on behalf of Makana Municipality...”* (Doc-04, p. 3). On the same point, Doc-01 is clear and stipulates that Environmental Education and Training includes workplace education (for those in fulltime employment).

Related to environmental education and training, WA3 says *“we have never been trained, we just work”* and *“the problem is we don’t know what we need to be trained on”*, but *“we would appreciate better working conditions ... the township is growing... maybe the supervisors should be trained on what we do too, then they will understand the things we face in our daily work.”*

When WA4 was asked if there is anything that they think they could be trained on with his group to do their job better, he says, *“We don’t have enough resources to do the work we are supposed to be doing”*. When asked if the Municipality was to give them opportunities to study further what would that be, WA4 replied enthusiastically more for himself that *“since I am an electrician I could fix robots etc, but those jobs are not there within the Municipality. The work that we do is general knowledge and we don’t need training on for example how to pick up a dead animal with a fork in the streets”*.

Asked whether he has ever received training on the job, WA6 responded,

...No, the only training we received was on how to use these tree cutting machines. We know nothing besides what we do here daily. Twenty years of my life I know nothing else, but this. We are expected to do our job as best as we can, but how? Every year we fill in the skills development forms and nothing happens....

WA8 works as a caretaker and says he has never been trained but when others arrive he trains them. He says he relies mainly on previous retired colleagues to help the new ones since there is no training provided by the Municipality.

WA9 is, however, an exception to the rule; he belongs to the water and sanitation group which is currently undergoing training at level 2. He confirms this is the first training he has ever received in his twenty three years of working for the

Municipality. However, his colleague mentions that he has been with the Municipality for six years now, and was trained previously only on short courses, like chlorine, health and safety, and these were related to his job. These he further adds, however, were not for certificate purposes.

The training experiences shared by the workers seem to go against one of the objectives stipulated in Doc-05 (ESSP document) which emphasises the need to put measures in place to ensure a proactive, transformative and innovative skills development system for the environmental sector. The objective further acknowledges the need for development of jobs in elementary occupations which Doc-03 confirms; environmental training at elementary occupation level is almost completely absent in the system at present.

5.2.3 Skills development planning / Workplace Skills Plan (WSP)

The unavailability of the skills development plan and implementation thereof appears to be a major factor of concern for the workers as was experienced in the interviews. A sense of reluctance to express themselves openly about the experiences of skills development was observed in the process of interviews. One of the workers requested to talk on the side and said: *“Madam we have seen them come and go and nothing comes of it, we trust you will bring us something”*. WA6 overheard this and immediately added, *“...every year we fill in the skills development forms and nothing happens”*.

WA2 added further and said, *“they have always said there will be training, but none so far even as casual workers. They made us fill in forms but nothing has happened”*.

In Doc-01 (the Makana Municipality Environmental Education and Training Strategy, p. 26), the focus was on the 2004 Workplace Skills Plan which mentioned that the training needs of the workers are revised on an annual basis. Looking at the 2011/12 version of the WSP, and given the current status of the skills development plan and the views and experiences of filling in forms by the workers, there is a vast contrast. There is an affirmation of the training experiences by the workers in Doc-03 (The Environmental Education and Training Needs Analysis) highlighting the fact that,...*“it appears there is considerable demand for training on sustainable*

development practices for the workers, and to date there really has been nothing to offer them” (p. 17).

According to the Makana Municipality 2011/12 WSP, there is a proposed list of training for Municipal workers. Analysing this document, there is no provision made for training of workers either on sustainable development practices or environmental practices. What is shown in the category of the workers is ABET, and this is disputed by the experiences shared by the workers.

Even though the WSP 2011/12 was available for use, the Skills Development Plan (SDP) was not available to link to the WSP. It was therefore not possible to compare the two in relation to the workers’ views and reasons and context. Related to this context, is Chapter 23 of Agenda 21 which states that *“education is critical for sustainable development and increases the capacity of people to address environment and development issues”*.

In addition, the National Skills Development Act (1998) and Workplace Skills Plan (WSP) and the Skills Development Levies Act (Act 9 of 1999) say an employer can reclaim 10% of its skills levy payment on submission of a Workplace Skills Plan to the relevant SETA. This comprises a strong message from national government for employers to invest in the education and training of employees (Doc-01). On investigating the workers’ experiences there is a contrast in what is happening in reality in training and skills development and what is documented in compliance to legislation.

In compliance with legislation, Doc-03 (the Environmental Skills Needs Analysis) noted that *...“the most obvious place for identifying environmental skills would be under the employment category ‘Environmental Management’ which occurs under most of the broader categories in the workplace skills plan...” (p. 11).* The rigidity of the WSP, as a working document, seems to make it open to non-compliance and to falling short on skills training relevant to sustainable development. The Makana Environmental Education and Training Strategy in (2005) tried to address this issue by suggesting how environment and sustainable development practice training can be integrated into existing WSP structures, but it seems that little progress has been made on this since then.

Besides training related to environmental practices, as recommended in the Environmental Education and Training Strategy, and the ABET that is contained in the WSP (but not delivered), there also appears to be a need for training on knowing how to deal with the public or interacting with the community as reflected in the experiences of the workers. Three particular cases in point would be the refuse collector, sweeper, and toilet cleaner. One particularly interesting fact emerging from the interviews with the workers was also captured in Doc-03 that ...*“the operators on the ground, whatever their role, often had to interact with members of the public, who asked them about, or more often complained about many things concerning the Municipality, especially service delivery ...”*

5.3 Events Influencing the Learning Pathways of the Supervisors

5.3.1 Training events

The training events of the supervisors show minimal opportunities. They also show that where there are training events they are directed at generic competences in their occupational context, and they are not necessarily sustainable development related. Different scenarios of the individual supervisors reflect this here as reported in section 4.4. For example, S1 says he was trained as a Sports and Recreation Manager and his CV attests to this. However his job description holds the title, ‘Sports and Recreation Officer’. He adds, *“I have been fighting to have a Sports Supervisor employed because I was not trained as one, I have been trained as a Sports Manager”*. He has attended a few short courses provided by the Municipality, only for attendance certificate purposes and not for a qualification. These include general management, computer skills, and project management which he has recently attended. It is noted that the project management course was for five days and was offered by Rhodes University’s Business School which carries the slogan ‘Leadership for sustainability’. The course is a module within an MBA programme, offered at NQF level 9 (Masters level) while S1 only has a Bachelor’s degree (NQF level 7) and no honours degree yet (NQF level 8). This course appears to be for individuals who already have sustainable development practice background and at this level should be able to incorporate project management into their key occupations. The post course assignment also seems to suggest the same idea. This training opportunity is paid for by the Municipality. His post graduate

diploma is in International Studies which is not related much to his occupation or to sustainable development practices.

S2 has been with the Municipality for only five months and has not had any opportunity for training experiences.

S3 has had some available opportunity for training. When asked whether the Municipality has provided any training to enable him to do his job, his response was, *“you will be trained on certain procedures and policies to follow in managing your area, and how in our work we should relate to the community – Batho Pele Principle”*. Other courses which are directly occupationally related (generic competence) and which certify attendance include a basic and intermediate computer course, and a course on managing absenteeism in the workplace. While talking to him during the interview he remembered that he had recently attended a five day course, 21- 25 Nov 2011, run by a company called Khabokedi which was appointed by the Department of Economic Development, Environmental Affairs and Tourism in the Eastern Cape. This course was on Landfill Management and Operation Training. The intention of the programme was to capacitate officials who are directly responsible for the operation/management of these facilities. The programme aims to improve sustainable development practices with specific reference to waste management. He says although he only received a certificate of attendance, it was an eye opener in many respects in terms of the municipal operations. The invitation letter, copy of the certificate, and the training programme reflect the details.

S4 says the issue of training does not really affect him at this stage in his work, as he explains,

Actually anytime from now on, my plan is to very soon go on early retirement. So it's no good for me to go now on training. I am sixty (60) now and for me to go on training at the age of sixty is going to be a waste of money. I'm not gonna be here much longer that's for sure.

However, S5 as supervisor has been fortunate to have been afforded an exceptional opportunity to attend an international training programme on supporting urban sustainability (SUS) at regional level in Tanzania and residential level in Sweden.

Her training programme, certificate and CV bear testimony to these training experiences.

The supervisors' training experiences seem to be met only partially by policy requirements as stipulated in the White Paper on Education and Training (RSA, 1995). It advocates that environmental education and training at all levels be provided, and further adds there is no exception at the local government sphere, particularly when it comes to the environmental education and training of municipal employees. As can be seen from the discussion above, such training is not a 'normal' or regular offering in the Municipal training programme, but is more 'ad hoc' and sustainable development training opportunities that do exist are made use of when they are available. It seems that the more generic workplace competence training programmes are more 'regular' and 'normalised' within the Municipality's training schedules and programming.

5.4 Events Influencing the Learning Pathways of the Managers

5.4.1 Skills Development Plan/WSP

As already mentioned in section 4.6 and 4.7 issues related to the Workplace Skills Plan reflect ongoing concern amongst all levels of employees and also affect the managers. There is also a general consistency amongst the managers in relating workplace skills planning to the skills development plan. This is typically reflected in the response portrayed by M2 when asked whether the Municipality has a workplace skills plan. His response was clear, *"not recently"*. He mentions that there is, however, a skills development section that deals with training as far as officials are concerned. He further states, *"it is not a functional section I must say. It is not operating the way it should be because we identify the courses we think people should go on"*.

Like M2, M3 states a consistent concern with issues of skills planning. When asked if the Municipality has a WSP, she shared, *"look we do skills development in the department (her section) but not according to the skills plan because we never get feedback from HR whatsoever, so we do our own"*.

When asking M5 whether the Municipality has a WSP, his immediate response was,

...You need to talk to the skills development office. There is a skills development officer eh... but I don't know what they do. It does not come to us on the ground. Every year they come and ask us to fill in a career path forms for each and every worker, fill in the forms, after a year they come and ask us to fill it again...

It would seem, however, that problems related to workplace skills planning in the Municipality is a wider systemic concern, as is also shown in the ESSP (DEA, 2010). The Municipality's skills development issue is reflected in Doc-05 (ESSP) which has in its findings in the research undertaken, and a recommendation to uncover a number of problems associated with skills development planning in the workplace. It elaborates that, *"in general, skills development planning is often simplistically viewed as no more than 'training options', with little attention to systemic issues such as mentoring, or mobility in the sector"* (p. 28).

Focusing on the analysis of the Municipality's 2011/12 WSP, and the training events captured, there is a definite need to include sustainable development training programmes. Doc-05, the ESSP has also identified the same issue generally and mentions that *"there is an urgent need to align workplace skills planning with critical skills needs associated with institutional mandates and key performance areas"* (p. 29).

5.4.2 Training opportunities

All the managers appear to have had opportunities to attend or to continue to attend training events which are mainly occupationally related, and not necessarily focused on sustainable development. There, however, appear to be exceptions to the rule with some of the managers (M4 and M1) appearing to have been successful in obtaining relevant training related to sustainable development practices over a period of time. M1's CV, certificate and training programme, for example are testimony to this fact. In his interview he also mentioned a major training event which he recalls has assisted him in his occupation as Environmental Manager (An advanced Environmental Management International Programme on Local Government and Sustainability) which he attended in Sweden, Stockholm. He also mentions that,

...I have been told recently that I need to do Financial Management for Non-Financial managers. I embrace that thing, all managers, all people in my level, all of us. They say we need to go to that course before 2013. If we do not do it, we are told SALGA is not going to renew our contracts (p. 3)...

It appears short courses required by legislation and that are occupationally directed are the main training events within the Municipality. When M2 was asked whether he has been on training, his response was,

...I have been on computer training, I have done negotiation, I have done disciplinary courses, I have been on many different facets of training that apply to council's work. I have never done any additional diplomas or courses related to the environment because I have quite a lot of knowledge in Horticulture, Forestry and Parks and Recreation Administration. Other training is in-house, report writing, effective management training...

M2 says the courses he attended were outsourced; service providers and individuals came to run the courses. The certificate in Essentials of Financial Management shows on his certificate that it was provided by Rhodes University's Department of Management. The certificate for the two day training course in 'Planning of hiking trails' shows that it was provided by the University of Pretoria's Department of Geography. This shows that universities appear to be quite involved in offering short course training.

M4's response to his training experience within the Municipality was to the point mentioning,

Jaa!... the output of it is very minimal and most of the time it impacts senior managers rather than the people on the low level. You see we put the skills and training that are needed for the people and you find most of the time it just affects people who already have the skills, like ourselves rather than grooming the lowest ones to come up...

When asked whether sustainable issues are included in the training programmes he says *"it is not much, especially that which talks to the environmental issues"*. He further indicates the fact that his predecessor was, for example doing a management course which was offered by the Department of Treasury and since he will be assuming new responsibilities as the manager he will do the same.

M4 has also attended a few courses for water and waste treatment processes as these are required by legislation. These were run by and paid for by the Department of Water Affairs because it is their responsibility to fund and capacitate Municipalities. One such course is 'Class IV process controller for the operation of water care works' used for purification or treatment of water as indicated on his certificate and was awarded by the Department of Water Affairs. Other courses which are

indicated in his CV show they were facilitated by different institutions like Rand Water and the University of Stellenbosch. He says he knows the courses from Rand Water for safety planning and water conservation and demand management were accredited (copies of these courses were not available). Some of the received certificates show they are based on acquisition of competence (which are different to attendance certificates), these include completion of a training course on software development specifically focusing on design centre, survey and terrain, sewers and water. Another certificate also based on competence obtained by M4 is on “Management of civil engineering construction processes’ which is accredited by CETA. He also has another certificate on ‘Infrastructure asset management’ which was offered and accredited by the Institute of Municipal Engineering of Southern Africa. From this it is possible to see that M4 has been able to access a lot of training that is relevant to his occupation.

The emphasis on water and sanitation training reflects priorities outlined in Doc-05, the ESSP document which emphasizes development of scarce skills. Water and sanitation engineering has also been identified as a skill of priority in Doc-01, the Makana Municipality Environmental Education and Training Strategy document. Doc-05 further shows that municipalities are short of water, sanitation, air capacity and waste management specialist technical skills (p. 20). This statement suggests that more training and more capacity is a necessity in these key occupations.

The courses which M5 has attended while working for the Municipality are generally directly occupationally related and provided by the Municipality. These include financial management, general management courses, disciplinary hearing courses, and performance management courses. He adds that *“also, at this stage we are busy concentrating on the budget that is very important and also the IDP for the next five years, for council and for officials”*.

Evidence given shows that there is little training and development specifically related to environmental aspects or sustainable development, although the managers appear to be accessing that which is available through different means. This situation is noted in Doc-05, the Environmental Sector Skills Plan, which states that, *“there is need to develop and expand the sector, which include Environmental and Training skills to ensure that there is adequate capacity to deliver environmental*

training to an emerging and rapidly growing sector (p. 17). Furthermore, Doc-05 emphasises the need for “skills to educate the public, and strengthen their empowerment and participation in local environmental management and sustainable development actions” (p. 20).

The managers training events as shown indicate a broad scope of training and development facets as also outlined in Doc-04, the Makana Municipality Training Policy. Interestingly, most of this training is offered as short courses that are not necessarily linked in any way, and which do not lead to a qualification. This situation is affirmed and described in Doc-05, the ESSP, which states that “*most of the training funded by HR workplace skills system is generic in nature*” (p. 29). The ESSP (Doc 05) states further that “*short courses need to be monitored for quality, efficiency and impact*” (p. 29).

The kind of training offered appears to be more within a reactive than proactive training events paradigm. This is a more widely spread issue, as reflected on in Doc-05, the ESSP, which confirms that,

Workplace training is dominated by a culture of ‘short courses’, which seems to be a strategy used by the sector to update skills, and to make up for a lack of mentoring capacity in the sector. Short courses are also a strategy used to ‘keep up’ with the rapidly changing field.

5.4.3 Acquisition of skills and knowledge

The individual CV’s provided by the managers indicate that skills and knowledge acquired have played a significant role in their career experiences, and shaping their learning pathways. This is shown by M1 who mentions that his keen interest in Environmental Engineering has helped him with the skills for sustainable development practices. Although he is still busy with this postgraduate Diploma, it enables him to think practically. He is also quick to mention that they (the Municipality) are fortunate to have partners like Rhodes University to work on sustainable practices,

So we have partners, lots of stakeholders not even exhaustive. They have the expertise, we don’t have those skills. Shall I say for the purposes of this research to mention that we are also fortunate to have partners who are geared to sustainable practices.

M2 mentions that the solid foundation provided by his previous educational background together with his work experience have provided him with the

necessary skills for sustainable development projects. He continues to elaborate that at college he did eighteen subjects. He is quick to point out that the four year national diploma included a lot of things. All of them were related to the environment; namely, forestry, commercial forestation, administration, and conservation, covering a very wide field. The National Diploma involved four years in college and two years practical. As students they did first year practicals under the supervision of the forestry officers then went to college for two years, then back to write a thesis which was situated within a specific project and then they received the National Diploma qualification. He agrees it was an excellent course, intense but very interesting and practical. After the National Diploma, he proceeded to do two other National Diplomas, all relevant to sustainable development, as reported in section 4.6.4 above.

M3 explains that what enables her to do her job as best as she can, is the skills she acquired from her social work days. Although this skill is not in the environmental sector, this background has assisted her with solid planning skills. This is where her strategic planning skills were born. She states,

You know when you do community development there are a whole lot of planning processes and especially involving stakeholders and ... also I think in terms of management skills assisting me in how I deal with people, how to motivate others, how to do monitoring and how to plan, and I would think, how to analyse, that is very important.

M4 emphasises that in his occupation as water and sanitation manager relevant skills and knowledge are critical in order for sustainable development projects to be carried out successfully. He points out,

You need to be trained in water related courses or workshops especially if you gonna do the water demand, because water demand on its own is a speciality. Then if you doing the blue and green drop you need to be trained on water quality management because that alone is a speciality. Let alone that you have that civil engineering which is standing there. If your water does not meet the minimum standards it is toxic, you can see it.

A wide range of knowledge on various legislative Acts which appear to be a major requirement in M5's occupation enables him to carry out his work on sustainable development practices. The solid skills and knowledge he acquired when he was studying as an Environmental Health Practitioner also seem to be enablers in this key occupation.

5.4.4 Sustainable development projects

According to the interviews with the managers, and perusing their job descriptions, there are a number of sustainable development projects running in the Municipality, which they are responsible for. M1 reflects the role of these projects in developing his learning pathway. He mentions a few of them and says,

...We as a Municipality are taking our cues from a document which was a result of an audit conducted by the Municipality in 2003/2004. This document is called Local Environmental Action Plan (LEAP). We are trying to implement some of the projects that were identified during that process. The process involved consultation with various stakeholders in Makana Municipality and nine major issues were identified. And in each of those issues, implementation plans were drawn up and I could mention them all, for instance waste management, ... commonage management, greening and energy and other projects. So, I am here to try and assist the Municipality to implement those projects...

M2 says his department is busy at the moment with conservancy projects. He explains,

...We are working on the whole Southern Commonage of the Municipality which is about two thousand hectors of land just to the South of us. We are in the process of creating a conservancy ... it is a joint venture between local government and provincial government, national parks and also private land owners, forming a conservancy. Things of similar interest like fire fighting and control of alien vegetation, different types of farming practices will be done as a joint venture although we will retain our autonomy on our land, it will be in conjunction with what the constitution says for conservancy. So, that's quite a sustainable thing itself. We are also involved busy trying to develop farming practices on the eastern side of land with stock owners where we are trying to equip them eventually to become farmers, emerging farmers. He continues to add that they have] ... a massive "working for water" project, in which they are in partnership and government is assisting through this project. This is a big nature project ... Then there are other things and ... I mean if you are talking about [sustainable development] ... we do assist with developing these small gardens within the township. Our role is more logistical, in other words we will bring in manure and help the people clear the land. So, we assist in those kinds of projects. Other greening projects, we are developing parks in the communities, there are four big projects running at the moment, within one project, it's a ten million project where we are developing four parks, that also in a way is making communities sustainable....

M3 is also involved in sustainable development projects, "*... not hands on but on a managerial level*" she explains. She says she started the green economy or a green city project initially, where she started with an initial concept on the paper issue on the economy, in terms of what they need, who should be involved, and what it is about. This involved external and internal workshops. The Municipality then

decided that this project should fall under Social and Community Services, under the Environmental Manager, so he is supposed to take it and run with it. She adds further that the other project she is working on is the SUS programme, and that she is doing this with her colleague (Agriculture and SMME Manager) within her directorate. She says further *“And then I have also been asked to drive the wind farm project and the biomass project, and now you know the independent energy providers are at a stage where they are going to put in their proposals”*.

M4 is a relatively new manager in his department, but mentions that he is currently involved with some projects, which include water conservation and demand management. He explains,

...This is a three year project also funded by the Department of Water Affairs ... actually it goes beyond three years because you still have to maintain it. It is not a once off thing because it is a lifetime project. Also, we are dealing with the project of blue and green drop, the one that deals with water quality and waste water quality monitoring so that you can ensure compliance with effluence. Those are the projects I am currently involved full time in....

M5 is currently involved in a major recycling project. He explains that *“council formed a private partnership with the Masihlule recycling project, and one of the stakeholder partners is the Department of Social Development and I am also on the board”*.

From this, it seems that projects are a key event in the life of the municipality which particularly influences the learning pathways and learning contexts of the managers.

5.4.5 Mentoring

Mentoring in previous workplace experiences and mentoring from external sources seem to also be a significant event in the learning pathway of all five managers at various stages of their learning pathways. However, none of this evidence is displayed in their CV's. It is only through shared experiences and views during the interviews that mentoring emerged as being important in shaping their learning pathways.

M1 says his mentor is Lawrence Sisitka, an Environmental Management and Training consultant. He acknowledges the fact that the practical experiences

gathered on issues related to the environment with him have been immensely beneficial in his current occupation.

M2 reflects that experiences with mentorship from his seniors while working in Cape Town at the Department of Forestry, Parks and Works helped him in his career. As reported in section 4.6.2 he also mentioned, *“I have colleagues at Rhodes University who have similar qualifications to me and we assist each other a lot”*. His membership as chair of the professional body, the Institute of Environment and Recreation Management, where he represented the Eastern Cape for eight years was significant in contributing towards his occupation, as he was able to share professional experiences with colleagues. He also belongs to the Forester’s Association of South Africa, which has also provided professional mentorship to him. His certificates show evidence of membership too.

M3 beams with delight when she talks about her mentoring experience. She states this about her mentor, *“she was an excellent mentor, in terms of thinking differently, looking at the bigger picture, and thinking out of the box”*. She adds that currently, instead of having a mentor, she attends workshops and seminars to keep her knowledge and skills updated.

Mentorship experience has also contributed towards shaping M4’s learning pathway for sustainable development practices. When asked about his mentorship he explains that his mentor throughout his working life has been Mr. Willem Weghuillen, a director for Water Resource Planning Consultants. This is the person he consults with mostly when he needs assistance or advice, especially on water demand. This is the person he used to work for, when he worked for his consulting firm, working on water resistance planning issues and where he acquired a lot of experience in terms of water conservation and demand management, he says. In addition, being an associate member of the Water Institute of South Africa also seems to serve as a mentoring space for him. His membership certificate suggests that he is indeed a participating member. His other certificate also suggests that as a student his foundation of mentoring experience was built from being exposed to being a member of the South African Institute of Civil Engineering.

M5’s inspiration for working hard is drawn from a strong family background. When asked about his mentor and what drives him to be so focused in his field, he said

that his father was his inspiration because he was hard working, focused and provided him with education despite the difficult conditions of his family life. These elements seem to have shaped a learning pathway which is self driven and self motivated, and focused on sustainable development practices.

Evidence of data established from the managers reveals that there is an important relationship that exists between skills and knowledge, expert guidance (mentoring), and project-based opportunities for application, which seem to serve as enablers for the managers to do better in their key occupations. Doc-06, the NQF system document, points to this relationship, and states that *“research supports the idea that knowledge, skills and expertise required for competent practice of occupations and professions is best acquired by active engagement with fellow workers in the work situation under expert advice”* (p. 11). Despite the experience of this relationship by managers themselves, there is little evidence of expert guidance (mentoring) within the Municipality for the workers, supervisors and managers.

5.4.6 Job descriptions and associated expectations

Issues of insufficient capacity emerge from an analysis of the managers’ job descriptions. For example, M1’s job description as an environmental manager is elaborate. He is the only official in that office with numerous and demanding responsibilities. He explains first that this is a new position in which he started in November 2008. It is a strategic position in which he develops concepts. He explains,

...I am here to support all Municipality Departments, like Local Economic Development, I am their backroom office, he says. I also support in particular Environmental Health and Cleansing Services. All departments, everybody, I am operating there to assist these departments with elevating what they are doing to the public. That’s why we were given the award (the greenest Municipality award in the Cacadu district and third greenest Municipality in the Eastern Cape). He says this with pride and says that he is fortunate that he has the LEAP document] ... which outlines that these are the things I need to do, and they are big...

M2 says his job as Manager of Parks and Recreation is to look after all Horticulture matters in town whether it be greening, street trees, parks, playground areas or gardens. This clearly covers an enormous amount of ground. He continues to say,

...That's one thing; one thing we do is horticulture management and construction which is commonage, nature reserve and the new conservancy. So, that's everything outside of this city set up or town set up. ... we manage that, and I have a specific manager for horticulture and I have a specific manager for Sports and Recreation which looks after all the sports grounds and programme and things like that related to sports. But if you break it down in essence we are responsible for mowing, cleaning, street trees, cemeteries, all cemeteries that we look after. We have the commonage as I said, and then we also look after the hiking trails. We have a nursery here. We have a wide range of what we do. We also do animal control, all stray animals in town, and farm animals, all taking place on the commonage on the common land. We also do weed control in the streets and wherever, so a lot of spraying is done by us too, its specialised work that. It's very much "Jack of all trades" Department if you want to call it that....

M3 also explains her job description in detail which involves identifying opportunities for local economic development, reporting to the Municipality, and managing the different branches and sections within the Local Economic Development Department. She explains further,

...So you must look at the management of the whole directorate in terms of strategically seeing opportunities, in terms of financial management, in terms of resource management, in terms of monitoring and evaluation, even in terms of doing your planning documents, what we call service delivery management and implementation plan. So... you are to guide and to drive and to feed the council and your staff on where are we going to and give direction....

Giving direction as outlined in M3's job description, is also noted in Doc-05, the ESSP, which mentions that there is a demand for skills in the environmental sector, and that **"development of new skills for greening the economy, sustainable development planning and managing risk, e.g. sustainable development planning and climate change risk assessment (new green skills)"** (p.17) is a critical need. These demands analysed indicate a need for requisite skills and capacity in order to achieve goals in such key performance areas as stipulated in the job description. It was interesting to note that while in the process of doing the member checking job, I found that descriptions of the managers were under review by the Municipality. The outcome of this process was not available at the time of writing this study.

5.5 Conclusion

This chapter provided an overview of how events influenced the learning pathways of the workers, supervisors and managers. These included events such as workplace skills planning, experiences of training, availability of training opportunities, mentoring, opportunities to work in projects and scope of job descriptions and associated expectations amongst others. What is interesting to note is that certain events seem to be more influential and/or available for learning pathways development in the different levels of occupation. For example, effective workplace skills planning (or the absence thereof) seem to be critical for the workers learning pathway, while availability and access to training opportunities seems to be critical for supervisors' learning pathways, and project-based platforms for developing learning pathway capacity appears to be important for managers. Some events, for example, effective workplace skills planning, and opportunities to participate in training opportunities appear to be critical to all of the learning pathways.

In the next chapter I examine the underlying mechanisms that influence the learning pathways.

CHAPTER 6

DATA PRESENTATION –LAYER 3: UNDERLYING MECHANISMS AND STRUCTURES SHAPING LEARNING PATHWAYS

6.1 Introduction

This chapter presents findings on analysis of the structural aspects and underlying mechanisms shaping learning pathways reported on in this study within a systems perspective, representing the third layer of analysis or the ‘real’ domain, according to Bhaskar’s ontology (see Table 3.1). The chapter focuses on identifying systemic and structural factors that influence articulation and access to progress on learning pathways of key occupations of workers, supervisors and the managers, in this order of sequence. Firstly, the issues identified for the workers are clustered conveniently and discussed in the following categories:

1. Inequality,
2. Social relations,
3. Power relations,
4. Marginalisation,
5. Organisational inefficiency,
6. Political neglect,
7. Legislative requirement,
8. Gender issues,
9. Language and communication.

A table of explanation on the retroductive analysis is also provided which includes a ‘causation map’ providing further explanations of the learning pathways of the workers.

Secondly, the underlying mechanisms identified from the supervisors are separately clustered and discussed for convenience in the following categories.

1. Access to education,
2. Choice of subjects,
3. Higher education and gender issues,
4. Marginalisation,

5. Retirement age,
6. Legislative requirement.

These categories are also explained retroductively in Table 6.2 and are explicated further through a 'causation map' which provides further explanation of the supervisors' learning pathways and how these are shaped.

Thirdly, the systems and structures identified for the managers are also clustered and discussed in their own categories which include:

1. Access to higher education
2. Access to resources
3. Legislative requirement
4. Organisational inefficiency

Ultimately, the retroductive Table 6.3 of explanation and causation map are drawn for presentation.

6.2 Structural Factors and Mechanisms Shaping Workers' Learning Pathways

6.2.1 Inequality

Evidence of the hardly existing learning pathways of the workers seems to be a resultant cause of limited or no education. This seems to be emerging from the situation of embedded past inequalities and injustices of the past apartheid education system in South Africa. The hindrance associated with lack of access to progress at the foundational level of education seems to be a direct consequence of the historical past inequalities, either looked at as focus groups or individually. This situation as represented by the workers and in the present horizon does not seem to have changed much from the past poor quality of education. The fact that there is no access or progression of learning pathways is a reflection that systemically, the education system has not changed as it should have. For instance, the worker who has been in the Municipality for forty years at the same level and with no difference in the present horizon of limited education as he had in the past, is an indication of a dysfunction and even of some decline, as one would have expected such opportunities to arise after 1994. The issue of lack of adequate access to basic education was noted and in most cases reported on in section 4.2, and was noted to have a negative effect on the workers' learning pathway experiences. This was,

however, also reflected in other material, for example Doc-03, the Skills Needs Analysis, identified more broadly the low level education situation as being problematic, and this was also identified as an issue in the ESSP (Doc-05), which also noted that local government has a large number of workers (up to 30 000 in total). The experiences of the nine workers in this case study, appear to therefore be more widely spread, and it can be said that this underlying mechanism or structural factor needs to be more effectively addressed at a systemic level should learning pathways for workers become more pro-actively developed and supported. It was noted in this study that ABET programmes were meant to be in place, but were not functioning for the workers concerned, due to poor workplace skills planning and other systemic factors (see section 4.2).

6.2.2 Social relations and lack of freedom

The external forces of the workers' family circumstances and the internal working environment as viewed and experienced by the workers seems to be dependent on each other and co-exist. The worker depends on the menial work in the Municipality and the Municipality depends on the worker for sustainable development practices to be carried out. These two conditions influence each other and further indicate some measure of influence on access issues opportunities. Taking up any job that comes for survival whether the workers have the relevant skills or not and whether they enjoy the work or not is evidence of the way that socio-economic issues act as structural mechanism influencing learning pathways. To show this mechanism at work, WA3 reports that he left school after Std 9 and due to his family situation and because of the high rate of unemployment in Makana (over 70%) he took up the only available menial job in the Municipality, even though it is not meaningful to him. Some of the reasons given by his colleagues clearly show that they do not enjoy their work. A case in point is one of the colleagues who mentioned that he 'sometimes' enjoys his work, while his colleague agrees clearly and responds, *"I must enjoy because of an empty stomach"*(WA4). Their colleague in another section reflects on the same situation and explains that, *"if we had alternatives, we would not be here. Imagine having to sweep all day long. Instead of sweeping I would rather be cleaning offices and be indoors"*. Another colleague in the same section says, *"I would rather be a messenger than sweep the streets"*. These social

relationship situations all show a negative impact influencing progress of these workers' learning pathways.

The phenomenon of the relationship between retirement age and expressed lack of interest in learning about environmentally related issues relevant to the workers' occupation reveals tension and access denied on learning pathways. WA1, when asked whether his job was important, gave a long answer, noting that he sees his job as important, because *"cleaning public toilets and making sure they are clean is important for a healthy environment"* but that he does not need training now because he is about to go on pension. These noticed experiences of lack of interest in learning by WA1, also seem to stem from embedded lack of education from the forty years of employment in the same occupation, which has manifested into low morale and low quality of life. With the Municipality providing no training or support system of education relevant to his occupation the opportunities of access and articulation seems thickened with complexities.

An interesting phenomenon noted amongst the workers is that even if there are those who are not willing to learn or have no interest whatsoever, there are those who have the willingness and interest to learn about sustainable development issues related to their key occupations. This phenomenon interestingly also does not seem to have any great influence on access or progress to learning pathways. This is reflected when WA8 responds eloquently knowing precisely what his team needs to be trained on. His answer is *"we need a course on dealing with people"*. His colleague also shows interest and adds, *"we need technical skills on maintaining grass, paint techniques for the paint we use to draw lines on the grass and learning to work as a team"*.

Lack of alternatives related to the jobs relevant to certain workers' skills also has an influence on access to progression or mobility on learning pathways. This becomes apparent from WA4's story of his skills development. He reasons that *"since I am an electrician I could fix robots etc, but those jobs are not there within the municipality"*.

Poor relationship between the worker and manager is expressed as a strong factor of dissatisfaction with the job by some of the workers. The tension created is observed to affect communication and attitudes towards work. It seems where there are

communication barriers there are learning pathways barriers too (in this case learning opportunities). The tension in the relationship between the workers and managers further reflects issues of power at play, which rides on the crest of lack of freedom of expression amongst the workers. The extent of the lack of freedom in the relationship is apparent when WA4 was asked whether he enjoys his job. His response was, *“the problem lies with our managers sometimes. They cannot work with us like human beings. Sometime they do not have the right approach”*. Inappropriate attitudes towards work also have an impact on the quality of work output and play a role as a mechanism influencing learning pathways. The absence of training which is supposed to build strong working relations between supervisor/manager and workers in order to understand each other’s responsibilities and frustrations seems to intensify the tension.

The phenomenon of lack of capacity seems to be related to the seemingly high rate of absenteeism which shows compounding blockages in the system. This is characterised by one of the workers saying, *“... what I don’t understand is that in all of this, when there is a shortage of staff, we get taken to other departments and work from there”*. The high levels of absenteeism as noted and observed, also characterises challenges of illnesses directly affecting the workers. This seems to hinder the functioning system of the daily work of the workers. This situation of absenteeism further seems to impact on the already incapacitated and overstretched workers as expressed by the worker in this case. The consequence of this situation as a result is no training opportunities provided, as it is believed with only a skeleton workforce, the work will suffer even more. In making sense of this complex situation, the ripple effect of absenteeism in relation to incapacity shows no articulation on progress to training based on the workers’ occupations.

6.2.3 Marginalisation and lack of training provided

The lack of education and training on environmental issues, or marginalization of workers from environmental training, makes them appear as low level contributors to sustainable development practices. The marginalisation seems to have propelled the workers to create an informal system of learning from each other. This self created system of learning, while reflecting a good team spirit, does not however lead to any form of access to a qualification and tends to have no influence on access or progression in these key occupations. This issue of marginalisation is

noted when WA8 relates that he has been with the Municipality for a while (see section 4.2) yet he indicates that he has never been trained but when others (new workers in his section) arrive he trains them. He says he relies mainly on previous colleagues to help the new ones since there is no training provided by the Municipality. His colleague continues and adds, *“since we have been here we have never received any training. We learn from each other”*. WA9 goes on to add that in his team,

...There is cooperation amongst ourselves (his colleagues). We listen to each other, we teach each other work, we advise each other, I have been taught so many things by my colleagues. I am the last one to arrive in my section, and was fortunate to be taught by those who were there before me...

6.2.4 Organisational inefficiency

The lack of efficacy of skills development planning processes in place within the Municipality seems to be deeply seated in other forms of organisational inefficiency. The organisational inefficiency seems to be particularly linked to inefficiency of the Human Resources (HR) system, as reflected in various comments from workers, supervisors and managers in Chapter 4. The interdependence of the HR and skills planning systems have a tendency to perpetuate this situation which is represented by one of the workers who expresses hope that each time he and his colleagues fill in the skills development forms something will come of it but regrettably nothing ever does. Out of frustration he says (see section 4.2.2) *“... every year we fill in skills development forms and nothing happens”*. There is an indication of a blockage in the system, as the workers fill in the skills development forms, but incorporation of the required skills, planning accordingly and implementation of the relevant training does not seem to occur. Communication and coordination between the skills development department and the various departments within the Municipality tend to show a dysfunctional process which influences learning pathways.

The organisational inefficiency seems to have let the workers down and gives rise to a sense of despondency which is felt when the workers talk about the lack of skills development. Although not tangible, it also gives a sense that the inefficiency has deprived them of relevant training opportunities. For instance this came up when one of the workers reflected on what he thought he should have been trained in and as he put it, *“... the work that we do is general knowledge and we do not need*

training on for example how to pick up a dead animal with a fork". This underlying feeling of despondency originating from organisational inefficiency indicates a muddled influence on articulation of this workers' learning pathway (representative of many others).

As mentioned in section 5.4.1, the Workplace Skills Plan is supposed to be an essential support strategy document for the Makana Municipality to provide a basis for planning of development of skills for the workers. It is also meant to prioritise the skills and provide education and training interventions accordingly. As reported in section 4.3, the 2011/12 WSP of the Municipality does not seem prioritise environmentally related courses for the workers. It does not include the workers' interests, well-being and career pathing. The lack of prioritisation appears to originate from the inadequacy and inefficiency of the HR system (not able to adapt and modify the WSP structural design to deliver relevant training on skills demanded). The WSP process is structured in such a way that it seems incapable of including environmental practices skills programmes, despite the fact that guidance on this was provided in the 2004 Environmental Education and Training Strategy for Makana (Doc-01). Here it was noted that the categories used in the WSP (provided by the LG SETA) do not directly accommodate this form of training, even though it is part of the constitutional mandate of local government. This non-inclusive or inflexible WSP process indicates that there is no articulation that exists between the structure of the WSP, the training system and environment and sustainable development training needs in the workplace. The Makana Municipality Environmental Education and Training Strategy (Doc-01) showed that this *can* be done, with some adaptation, but this has not occurred, reflecting other structural factors such as inflexibility or lack of capacity for responsive WSP in the Municipality skills planning systems. The consequences are a further gap impeding accurate skills planning.

Examining the fragmented system of the various departments related to sustainable development practices also seems to be affected by inefficiency related to inter-sectoral collaboration and cohesion. The environmental management office is fairly new and is meant to drive strategic issues of the Municipality centrally. There, however, appears to be a historical culture of officials driving projects in silos, and without adequate management mechanisms for integrating processes on sustainable

development, this cultural practice continues. Recognition of the cross-cutting function of the environmental management office seems minimal and the effect is felt by the workers related to environmentally related training as shown in this study. Identified skills of priority in the strategic policy document, the LEAP, are not moving as swiftly as the rapidly growing demand in this landscape appears to suggest. This in turn has a negative influence on the development of learning pathways.

6.2.5 Power relations

Oppressive power relations and a history of neglect of worker training in municipalities seem to be a mechanism influencing their learning pathways. These two elements are co-jointly linked to class and race histories in South Africa which have tended to discriminate and neglect working class employees who are mostly black and with limited education (see section 2.7).

Lack of freedom of power, as also reflected above in section 6.2.2, seems a strong contributory factor influencing access to learning, and the development of learning pathways. There seems to be an ‘unwritten’ or hidden principle which reflects ‘the less the power the less is done’, hence hardly any education or training is provided for the workers. The power of those in charge seems to maintain limited access to training. This is evident in WA2’s eleven years of working experience, and his response to a question on training provided. He states, “... *they [municipality] have always said there will be training but none so far. They made us fill in forms nothing has happened, and we have never been trained on ABET*”. This lack of freedom of power is further expressed by his colleague who although he has been with the Municipality for three years, adds, “... *we have never been trained, we just work and the problem is we don’t know what we need to be trained on*”.

Poor working conditions seem to be directly related to the lack of freedom of power. The system and the working environment (structural condition) seem to be the bridge to the imposed inability to work freely. Generally the workers think that their work is important but they are hampered by poor working conditions. Poor working conditions constrain access to articulate opportunities related to the work they do. This experience is noted in the stories shared by some of the workers. WA3 says, “... *we would appreciate better working conditions... the township is growing*

...“maybe the supervisors should be trained on what we do too, then they will understand the things we face in our daily work”. On the same note, in a desperate need to share his story, his colleague adds, “... even if there is a dead donkey, you get instructed to go and collect that animal and yet there is no protection...”. The next colleague further shares the intensity of this situation and relates, “... when we ask for equipment to do the work we are supposed to do, we do not get support, and yet we are expected to do the job in the best way possible”.

In this context it seems that ‘unsafe and unhealthy’ work are seen to be acceptable over ‘clean and decent’ work, which is related to a clean and healthy environment, reduction of waste production in society and transformation to a green economy. This occurs seemingly because unsafe and unhealthy work exists, and people in poverty need employment. Power seems to also maintain the status quo of the poor working conditions and consequently maintain the mechanisms of blockages on the workers quality of skills and inadequacy.

6.2.6 Political neglect

Generally local government seems to be strongly burdened by internal politics, a situation prevalent in the case of Makana. The slow pace of transformation to redress past historical educational imbalances at the level of the workers in the Municipality gives a sense that this could be in part a contributing factor. Internal politics appears to influence decision making and take precedence over collaboration, governance and reflexivity of issues related to training and development of the workers. A disconnection (neglect) related to the demands of training and development of the workers who desperately needed it, is further experienced in the skills needs analysis process completed, but never realized, as reported on in section 4.2, 4.3, 5.2 and in the sub-sections above.

Within the training system more broadly, there is a neglect of public sector worker training focusing on sustainable development practices, as was also reported on in the ESSP (Doc 5); and systems of education and training provisioning that have tended to neglect the ‘public good’ sphere of operations (DEA, 2010).

6.2.7 Legislative requirements and compliance

Legislative requirement are in place to enforce training as discussed in Chapter 2 (section 2.6). However, this seems to be linked to compliance i.e. the need to show

that some training has taken place, rather than to holistic analysis of needs. Where there is no legislation in place there seems to be no training provided and prioritised. The only group of workers who were completing training in the entire worker force is the water and sanitation group. The reason indicates the enforcement of the Environmental Management Act, the National Water Act and other associated legislation which seeks to ensure that all employees at all levels in water related occupations are trained with relevant skills. In addition to legislation stipulated, water and sanitation have been identified in the ESSP and Municipality LEAP (strategic policy documents) as critical and scarce skills and demand for such training is expected to be highly prioritised. While this is the case, it is also noticeable that for other legislation, e.g. the National Waste Management Act or the National Biodiversity Act, little training is provided, which shows that the legislation on its own is an insufficient mechanism to drive training provisioning for workers. Other enabling factors need to be in place. Different structural mechanisms need to *interact* in mutually complementary ways to ensure successful learning pathways development.

6.2.8 Gender Issues

During the nine focus group interview processes, visiting different working sites, I observed that they were dominated by males who were the most vocal. Looked at from the acculturation angle, in traditional black culture these are typically male attributes (Mohanoe, 1998). It was also noted that when asked what training they think they should go on to help them do their work better, the males wanted to go on training such as ‘farming’ and the women ‘catering’ and ‘sewing’. The choice of training seems to be gender stereotyped based and has nothing to do with their key occupations. It is as if by virtue of being female, those are the only choices they have available. The past education system also seems to have played a critical role in socialising males and females by way of subject choices. The irrelevance of the selection of training in relation to current occupations and sustainable development, particularly for the women, is a reflection of the past historical marginalisation issues which has a bearing on training and development related to their occupations. The prime function here seems to be the need to develop capacity for these women which the ESSP (Doc-05) has also identified, particularly for black women in the environmental sector.

6.2.9 Language and communication

The constitutional right to and political correctness regarding equal status of all eleven languages is apparent in the local Municipality working environment. Since the workers are mainly comprised of local ama-Xhosa, the dominant medium of communication is Isi-Xhosa, a point also identified in Doc-03, the Skills Needs Analysis, the low levels of education seem to harshly affect their knowledge and competence related to linguistic demands, particularly in the use of English, as their access to English is limited and shaky. Although English is not a requirement for the workers' daily work, Isi-Xhosa not to be despised as the workers' language of choice and practice, but it may shroud the issues of equal opportunities in the workplace and influence training and development issues.

In Table 6.1 which follows in the next page, I provide a summary of these issues in the form of a 'causality map' which shows the interacting nature of these mechanisms and structural factors shaping workers' learning pathways, as analysed in this study. This 'causality map' is based on retroductive analysis (see section 3.2.3), and reflects the 'open system' of interacting factors that need to be engaged with should a more pro-active approach to workers' learning pathways and sustainable development be established in Makana Municipality.

Table 6.1 Retroductive analysis – The workers’ learning pathways as influenced by interacting structural factors and mechanisms

Causation diagram – Workers	Retroductive explanation
Experiences Learning pathways hardly exist or do not exist Limited education Low quality education EMPIRICAL DOMAIN Events No training provided with the exception of water and sanitation focus group No skills development plan WSP non-inclusive of environmentally related training WSP non- inclusive sustainable development training ACTUAL DOMAIN Structural / systemic mechanisms Social relations Poor working conditions Poverty Past historical inequalities Power relations Injustices of the past education systems Lack of freedoms National requirements by legislation IsiXhosa language and communication barriers Political neglect Organisational inefficiency Gender issues Legislative requirement (water and sanitation) Marginalisation REAL DOMAIN	The workers have either non-existing or hardly existing learning pathways in their key occupations. This is shown in their experiences of low quality and limited education. No training is provided for them either relevant to the environment or their occupations. Out of the nine focus groups, the only training provided is for the water and sanitation group. This is the case because of the National legislation from the Department of Water stipulates that training is imperative to all water related occupations, and the DWA is funding such training. This is also a skill identified as scarce and critical and therefore prioritised for training at all levels in the environmental sector and local government. There is no or very poor skills development planning in place for sustainable development, implying actualization of planning of skills, no incorporation of relevant and integrated skills training for the workers. Despite guidance available in the Environmental Education and Training Strategy, the WSP in place does not make provision for accommodating environmentally related training, and neglects the workers critical training. The unravelling of underlying systems and structures which cause the non-existence and hardly existing learning pathways of the workers indicate various mechanisms at play. These show reality which can never be pre-determined or pre-conceived, and that many structural mechanisms need to be engaged at the same time, for change to occur. They include, inequality of past historical injustices on the education system which has perpetuated the situation, social economic factors such as poverty and unemployment in extremes being barriers to learning pathways, tensions of power relations between workers and managers causing blockages, marginalisation, Municipality’s organisational inefficiency in general affecting processes, decisions on training based on internal politics neglecting the workers’ critical needs, compulsory legislative requirement enforcing training where provided, gender stereotypes on choice of training unrelated to occupation constraining training, and language and communication as impeding opportunities related to occupations.

6.3 Structural Factors and Mechanisms Shaping Supervisors' Learning Pathways

6.3.1 Access to education and training

The supervisor's learning pathways stories show that they have had access to education despite the past historical injustices of the education system in South Africa. Only one out of the five supervisors is white. Interestingly, he seems to be the least educated with only a Vocational Certificate as a qualification. The fact that the majority of supervisors are black, reflects that the education system is beginning to allow opportunities and learning pathways for all, especially those who are able to complete schooling (the case is not the same for workers as shown in section 6.2 above). This has a direct bearing on learning pathways. It seems access to quality of education and the quality of schooling and tertiary learning pathways have an impact on the quality of life which all forms a bridge to skills development and training.

Having access to education within the broader subsystems of the NQF structure (particularly if there is access across the three subsystems) has an influence on learning pathways of the supervisors concerned. The supervisors show that access and articulation between the Umalusi sub-system (schooling) and the CHE sub-system (formal tertiary education) is critical for this level of employment. As shown in the learning pathway stories in section 4.4, access to, and meaningful articulation to the QCTO sub-system, especially for sustainable development related training hardly exists. This seems to stem from the HR system's inefficiency and inadequate capacity to incorporate such training into the WSP. They also appear to be paying very little attention to sustainable development related training. This situation is evidently perpetuated by a culture of training which privileges generic short courses which are occupationally directed (for generic workplace skills) but which are not directly relevant to sustainable development practices, although they do provide supporting skills for execution of sustainable development tasks.

The inefficiency of the organisation and its effects on learning pathways development is also shown up by the problem of lack of resources when supervisors are unable to implement what they have learnt from courses attended for certificate purposes. This evidence is shown in S3's story when he mentions that one of the challenges is *"being able to take what you have learnt to the work you do, and of course time and resources become important ... even in our offices we have only one*

computer which we share". This situation demonstrates the wider and deeper seated issues related to inadequate capacity for planning and budget related matters that affect supervisors' ability to do their work. Lack of resources such as sharing a computer directly affects efficiency and professionalism in work to be done, as well as learning opportunities. Some of the short courses attended by the supervisors concerned include computer training and these skills are imperative as a technological tool in advancing sustainable development practices. Further implications here tend to show that with unused and rusted skills, ongoing renewed and improved skills training will be necessary for quality and relevance. But signs of this prolonged challenge reflect yet another level of blockage in the system, the red tape which delays buying of the necessary resources. The multilayered blockage in the system impedes the importance of skills development and sustainable practices, and affects learning pathways of supervisors and others in the system.

A typical example of inefficiency in organisational systems planning is reflected in S5's situation of having to juggle time and effort between occupationally related training and sustainable development training. At one stage S5 was studying three courses; namely, SUS, Municipal Systems and HR. This appears to be an overburdening and over stretching of one individual purely owing to lack of capacity for adequate systemic planning.

6.3.2 Choice of subjects and related studies

The choice of subjects in high school indicates a solid foundation influencing the supervisors' learning pathways. The aspect of attention to career guidance might have benefitted those supervisors who might have had the rare privilege in the past, in their respective schools, to choose relevant subjects related to their future careers. S2 and S5 seem to have had an almost similar choice of subjects in high school articulating a smooth transition into higher education studying for a Bachelor of Agriculture degree and they are currently situated in occupations directly related to what they have studied.

S1 and S3's subject choice, however, indicates a shaky foundation related to environmental issues in high school. Also, what they studied in higher education is completely unrelated to their current key occupations. The variety of switches from one field to the other in their career stories show a certain measure of lack of skills

training and development which consequently appears to have implications for a strong command and assertive effort by them to make up for the gap. Here the short course, on-the-job learning opportunities, and mentoring from colleagues who have already been previously exposed to the environmental / sustainable development field becomes important, as shown in sections 4.4 and 5.2. This is in addition to the demand already in place for development of new skills for mainstreaming the environment and expanding the sector. Sadly, as shown in this study, not much of a pro-active, carefully planned nature is happening on this front further hampering access and articulation into the QCTO sub-system which appears to be critical for up-skilling as well as re-skilling into sustainable development learning pathways.

6.3.3 Higher education and gender

As shown in section 4.4, two of the five supervisors are black females and both have a Bachelor of Agriculture qualification from the University of Fort Hare, a historically black institution in the Eastern Cape Province. Provision for this qualification by this higher education institution demonstrates relevance to environmentally related issues and sustainable development practices. Proximity of the institution and relevance of the qualification appear to contribute towards influencing skills development and learning pathways in the Municipal context. It is also interesting that issues of gender and educational history are apparent and intertwined in this particular case, which also have an influence on learning pathways. Furthermore, the participation of women in this qualification pathway, seems to break the barrier of gender stereotypes related to qualifications relevant to environmentally related occupations (DEA, 2010, p. 20). The ESSP (Doc 05) argues for strengthening access and learning pathways especially for black women professionals in the Environmental Sector. As shown in the two cases of the women supervisors in this study, the access to this initial qualification has influenced their learning pathways positively.

6.3.4 Marginalisation and inadequate provisioning of training

The opportunity awarded S5 to attend an international training programme in SUS (Supporting Urban Sustainability) seems to have provided her with a great skills development opportunity. She is the most qualified amongst the supervisors interviewed with an Honours Degree in Agriculture. Her educational background might have opened doors to this international training opportunity for her but the

shortcoming identified in this situation is that it raises issues of marginalisation on the part of other supervisors. This marginalisation tends to create imbalances in skills and knowledge amongst the supervisors and shows to have a direct bearing on training and development. S1 and S4's stories are evidence of different occupations who are self taught and learnt from others in the team. S1 is a keen reader in order to enable or familiarise himself with his area of work. He says he uses the internet a lot and also reads any Sports magazines and modules that are there. He says further that *"... sometimes two day courses here and there. Sometimes I realise the information in the magazines is too advanced for our level"* [referring to himself and his colleagues]. One thing though which he says he has learnt from the magazines is the use of borehole water instead of tap water. Using underground pipes instead of copper wired pipes which are frequently stolen was another idea newly learnt. *"We also have a watering trolley which moves for ten meters at a time and waters on its own, it is programmed and remote controlled"*, he adds. S4 says there was not training for him like his subordinates who are currently on the water purification course. He explains that he has learnt from experience over the years, learning from others was how he did it. S3's story shows no system of support unlike his colleague S5. He suggests that one area that the Municipality could look into is the bursary system. As reported in section 4.4, he indicates that *"if the bursary system was intact, it would make it possible for us [him and his colleagues] to register and study further. This would empower us and contribute better to the work we do"*. It seems therefore that there is no structural mechanism in place which would ensure that all supervisors are offered relevant training to assist them with their sustainable development practices.

6.3.5 Retirement age and lack of RPL systems

S4 is the least qualified amongst the supervisors interviewed in terms of qualifications but the most qualified in terms of years of experience in his occupation. It is also interesting to note that he is the least interested in new training and development when legislation requires that all employees in occupations related to water must have training prioritised.

Identified in this situation is an assumption that based on the number of years of experience RPL (recognition of prior learning leading to a qualification) is necessary, but it is not spelled out. The absence of RPL is reflected in the

qualifications on S4's learning pathway; he has not been given formal recognition for his wealth of expertise learned over the years which may have retarded other opportunities that he may have been able to access. Also, S4's retirement age raises another issue of the mentoring system which is assumed to be in place but not spelled out. This is reflected in his story when he adds, "... *actually anytime from now on, my plan is to very soon go on early retirement. So it's no good for me to go now on training. I am sixty now and for me to go on training at the age of sixty is going to be waste of money*". The shortcoming of not going on training and not mentoring anyone to take over is an indication of a gap negatively influencing skills development in the system.

6.3.6 Legislation requirements

As reported in section 4.4, S3 seems to be attending short courses which are related to his occupation and which are related to sustainable development; however these are certificates and not formal qualifications. His acquired knowledge from the courses does not seem to benefit him much in terms of career progression and has no influence on articulation of his learning pathway. Going on relevant training is noted to be as a result of the required rapidly emergent environmental legislative framework of the new Waste Management Act which focuses on new skilling of all waste practitioners in South Africa. Additionally this seems a fulfilment of the LEAP strategic document citing priority of skills development for waste management within the Municipality

In Table 6.2, I present the retroductive analysis showing the 'causality map' of the structural mechanisms and influences on the supervisors' learning pathway. Again, as in Table 6.1, it shows the importance of understanding the *interacting mechanisms in an open system framework*, for engaging issues of learning pathways development.

Table 6.2 Retroductive explanation-Supervisor learning pathways

Causation diagram – supervisors	Retroductive explanation
Experiences Generally shaped by school and tertiary education choices; choice of high school subjects Choice by field & personal choice Lack of opportunities for SD training Lack of support and mentoring Gaps in professional knowledge EMPIRICAL DOMAIN Events Sort courses International training programmes Poor WSP ACTUAL DOMAIN Systemic / structural mechanisms Access to education Choice of subjects Higher education qualifications Career guidance Retirement age and RPL (lacking) Marginalisation and inadequate opportunities for training Ineffective skills planning systems Legislative requirements REAL DOMAIN	The supervisors' learning pathways exist and are shown to be generally shaped by occupationally directed training which is not relevant to sustainable development. The supervisors' experiences vary from field, sector and careers previously followed and currently followed. Within the Municipality, minimal training and development is happening for the supervisors and where there is any, it is not particularly relevant to requisite skills critical to their key occupations. Various underlying system and structural mechanisms seem to be shaping this situation. When these are identified they show issues such as access to education and especially tertiary education as being significant shaping mechanisms. At high school level, possible new opportunities of having career guidance which was previously not in black schools also seem to have an effect. Breaking gender stereotype barriers related to selection of occupations in the environmental sector provides for smooth access and articulation of learning pathways. Skills and knowledge gaps amongst the supervisors seem to cause marginalisation issues, as does a lack of a systemically structured training programme on SD for supervisors. Lack of RPL, planning and preparation for supervisors retiring, such as mentoring and exit strategy seems to also cause blockages in the system related to learning pathways. Where relevant training is happening for the few supervisors it shows to be influenced mainly by legislative requirements. Inefficiencies and lack of the requisite capacity in the HR and WSP systems affects learning pathways.

6.4 Structural Factors and Mechanisms Shaping Managers' Learning Pathways

6.4.1 Access to higher education and RPL

All the managers indicate they have formal qualifications from reputable higher education institutions (Technikons and Universities). As shown in section 4.6, the qualifications vary from a National Diploma to a Masters degree; all are influential and relevant to their individual occupations. Three of the managers' educational

backgrounds are solidly built on environmentally related training (Parks & Recreation, Waste Management and Environmental Health, Water). These tertiary qualifications have a significant influence on providing for the requisite skills, and it is possible to say that such specialist training is therefore important to sustainable development learning pathways.

One of the managers (M2) has three National Diplomas relevant to his occupation from various Technikon institutions, reflecting a horizontal specialization which has contributed to the deepening of his knowledge and practice over time, especially its relevance to the specific position that he fills. It does not, however, provide him with a vertical learning pathway, but he seems to have made progress in the organisation with the horizontal specialization route that he selected. His two other colleagues (M4 & M5) have National Diplomas at the same level, also acquired from separate Technikon institutions. Looking at all three of these managers' learning pathways gives a false impression that they all have one National Diploma with minimal articulation because the NQF structure (in terms of how it defines progression according to 'advancing levels') does not seem to cater for this phenomenon of multiple qualifications at the same level, or horizontal progression. It seems that another lens of deepening occupational competence is required for understanding this form of horizontal progression.

The other two managers have Master's Degrees in different fields. These qualifications seem to serve as enablers in opening more doors to training opportunities beyond their higher education qualification. This is apparent in M1 attending an international programme particularly related to sustainable development practices and this also shows an influence in his learning pathway (QCTO). The other manager with a post-graduate qualification is primarily involved in strategic planning issues related to sustainable development within the Municipality. Having access at this level of leadership seems to play a significant role in reflexivity and decision making which consequently contributes towards training and development related matters particularly impacting on sustainable development. This is evident in the case of S5, who reports directly to the manager, and also granted the opportunity to attend an international training programme on Supporting Urban Sustainability compared to the others who have not had the same opportunity.

Knowledge and skills acquired either at higher education level or previous employment helps the managers in sustaining their key occupations, and in making further choices influencing their learning pathways. This is apparent in the case of M2 and M5 who have not been to any formal training programmes related to sustainable development since their higher education experience. Being able to draw on past knowledge and experience from Technikon days, seems to help develop a ‘non-formalised learning pathway’ as do their ongoing professional interactions with mentors and mentoring structures as reported in section 5.4.5 above. While these are key drivers in their occupational success, these underlying mechanisms deceptively do not show a formalised impact on the managers’ learning pathways, which is possibly due also to a lack of functioning RPL systems. The NQF, except through a commitment to RPL (which is yet to be realized in practice) does not seem to be accommodative of such non tangible elements in learning pathways construction. This situation looked at in depth reveals further issues related to the formalization of renewal of skills and upgrading of skills needed to capacitate managers on latest developments relevant to sustainable development. Making these processes more explicit through either training or RPL, could make them more visible and available to others in the system

6.4.2 Access to resources

Most training seems to focus on the managers’ more generic competences for management related skills development aspects. As reported in section 4.6, all of the managers in this study have gone on some or other type of training, although this is dominated by short courses that focus on more general management issues (e.g. financial management for non-financial managers). These short courses are not necessarily directly related to sustainable development practices and planning, although they can be seen to be supportive of such practices. Seemingly courses such as management skills are considered critical at management level as that is where effective service delivery and transformative processes need to start. Because these short courses are not within a formal qualification structure, they do not seem to have much influence on progression of the learning pathways of these managers in a vertical progression sense.

Membership associations and professional bodies, to which M2 and M4 are accredited, seem to be essential in keeping up skills with the latest developments and trends on sustainable development issues and practices. As key as this seems to be, however, without RPL systems in place, this does not reflect in terms of vertical progression in their learning pathways, although it seems to have a high effect on horizontal learning pathways progression, if this is viewed from a deepening of occupational expertise or competence perspective.

6.4.3 Legislative requirement

The main driving force behind training and development of the managers seems to respond to the legislative requirements of the local government sector. Failure to participate in such training programmes is said to have negative consequences if not adhered to (the managers' contracts will not be renewed). As reported in section 4.6, and in section 5.4, there is, at present, a legal requirement that all section 57 employees must complete prescribed training-the CPMD which is a planning management diploma offered by the LGSETA. They all need to be qualified by 2013 in this area. Such adherence to legislative and sector specific requirements seems to help facilitate institutional and managers' process of training and development. Also related to this are other institutional requirements, as explained by M5 in his story,

...We are always busy on one or the other things on management because we've got performance system management that we need to put in place, so the section 78 people are honoured. At this stage we are concentrating on the budget because that is very important and also the IDP (Integrated Development Plan) for the next five years, for council and for officials...

This has substantive implications for practice and learning, as every five years there is a change of political term in local government, which provides a time for upgrading systems of governance and strengthening internal systems. At the same time, as progressive and as relevant this may appear to be, minimal influence of such processes show on the formal (vertical) learning pathways of the managers, and not enough is understood in terms of how this contributes to horizontal learning pathways development.

Water related training by M4 seems to be enforced in response to issues of sustainable development as legislated by The National Environmental Management Act (no.102 of 1998), and the National Water Act (No. 36 of 1998) as mentioned in

section 5.4.3. However, no indication of impact is shown on this managers' vertical learning pathway as the courses are for certificate purposes and not a formal qualification. The legislations appear to have a positive influence on learning pathways.

The Waste Management Act legislative requirement in conjunction with the identified skills of priority by the Municipal strategic policy document (LEAP) and the broader Environmental Sector Skills Plan strategic document (ESSP) demands that there be training on this front. However, it is noted that the manager concerned does not seem to be attending any related training in compliance. This, as discussed in section 5.4.3 shows that legislation alone is not the only mechanism that shapes provisioning of occupationally directed training. Other interacting mechanisms need to coincide to make such training possible, as in the case of water legislation related training where the funding for such training is provided by the DWA, and in the local government compulsory training where the provisioning system is working and paid for by the LG SETA.

6.4.4 Institutional inefficiency

As reported in Chapters 4 and 5, it appears there is a common and recurrent pattern of concern amongst the managers related to the Skills Development Plan, and to the skills development planning processes. As already mentioned a few times in this study, this is indicative of a system not functioning as it should. This is evident in M5's response when asked about her experience of the Skills Development Plan. Her unhappiness is expressed deeply when talking about the experience of training issues. She reports that the Municipality *"... never does the skills plan,... a proper skills plan to say what does the plan say, what are the skills necessary"*, so for her it is *"like a dark horse"* she adds. This is a very concerning factor for her, so much so that she says, *"look we do skills development in the department (her section) but not according to the skills plan because we never get feedback from HR whatsoever, and so we do our own"*. This situation of creating own skills development plans within an existing system is further indicative of a dysfunctional system which impedes a true reflection of the real skills needed and the impact they should have as a whole. This issue is also evident in the way that the Environmental Education and Training Strategy of the Municipality developed in 2005 were 'left' to the environmental manager. The recommendations on skills development and skills

development planning (including how to integrate environment and sustainable development skills planning into the WSP) have not been put into action by the HR division since then.

It seems therefore that there is misalignment of some sort between the skills development office function and the rest of the departments. This demonstrates a malfunction in the HR system impacting on the entire workplace skills development system, and all of the learning pathways of workers, supervisors and managers. As one of the managers expressing deep concern said,

...I think you will find that if you have to interview other departments too, its coming out that we are not the only ones, that we will identify things but things don't be where they should be, and it revolves around individuals who are not doing their work. It's rather sad, [he concluded]...

The fact that skills development forms are filled in by the officials whenever required means that there are individuals occupying these positions in HR but nothing is followed through. This situation is enshrined threefold and appears; that firstly, there might be a mismatch of skills, with individuals wrongly placed in HR who have no knowledge of HR systems. Secondly, individuals might be in occupations with inadequate skills, qualified but with low quality education which has ill prepared them to work efficiently. Thirdly, there might be capacity issues, shortage of staff therefore the work never gets done as expressed in the stories of the managers. Either way, these factors reveal mechanisms that substantively retard progress on skills development within the Municipality.

As reported in section 5.4.5, all five managers' experiences show that they have greatly benefitted from previous employment mentoring opportunities, and mentoring from external sources. From the stories shared, continuing with these external sources of mentorship points to help received in doing their work better and that this is an ongoing process. The fact that the managers seek advice externally implies that there is a gap in the internal system of the Municipality. Although the mentorship networks for the managers are informal they are reflective of influence on knowledge and skills (both theoretically and practically). As shown in section 4.4 and section 5.4.5 these important mentoring processes are not 'institutionally

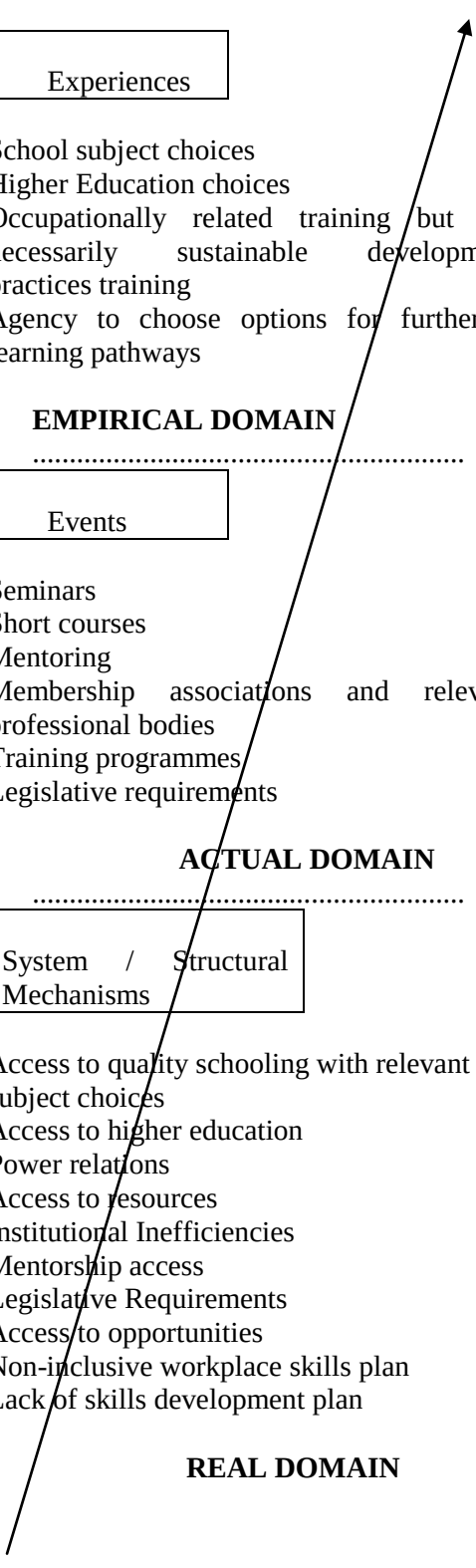
shared or supported’, which shows another area where institutional efficacy could be improved with regards to learning pathways development.

It is noted that for Water and Sanitation, while the workers and manager comply with training, the supervisor does not. It is also noted that with Waste management neither the workers nor the manager go for training but the supervisor does. Such imbalances in knowledge and information tend to create blockages in skills development and training. Skills development and training does not seem to be synchronised departmentally or systemically. This is reflective of issues associated with the skills development plan, and is further reflective of inefficiency in the system.

The barrier of lack of study support even when there is a legislative requirement reflects further issues of inadequate planning and inefficiency in the system, such as in the case of the barrier encountered by M3 when her leave was denied because of capacity issues; other managers struggle to juggle time between work and study without substantive support. All of this tends to affect progress in training and development.

In Table 6.3, as in the case of Table 6.1 and 6.2, I reflect the shaping factors in the managers’ learning pathways, as analysed in this study using Bhaskar’s ontological framework which recognizes the need for depth understanding of what we see expressed empirically. Such an analysis draws attention to the multiple interacting generative mechanisms that give rise to and shape people’s agency for creating and building their learning pathways. Even though managers in this case show themselves to have more agency for shaping their learning pathways than the workers or supervisors do, they too are constrained by an interacting system and structural mechanisms, all of which need to be engaged with if more pro-active approaches to sustainable development learning pathways are to be institutionally established in the local government context concerned, but possibly also more widely in other local government contexts (as shown by various document analyses related to the learning pathway stories of the individual respondents in this case study).

Table 6.3 Retroductive explanation- manager's learning pathways

Causation diagram – managers	Retroductive explanation
Experiences School subject choices Higher Education choices Occupationally related training but not necessarily sustainable development practices training Agency to choose options for furthering learning pathways EMPIRICAL DOMAIN Events Seminars Short courses Mentoring Membership associations and relevant professional bodies Training programmes Legislative requirements ACTUAL DOMAIN System / Structural Mechanisms Access to quality schooling with relevant subject choices Access to higher education Power relations Access to resources Institutional Inefficiencies Mentorship access Legislative Requirements Access to opportunities Non-inclusive workplace skills plan Lack of skills development plan REAL DOMAIN 	Analysis of the managers' learning pathways show variances of non tangible elements influencing them but not quite spelled out. The learning pathway seems accessible although not necessarily seamless. There is also a clear missing element at the level of system based sustainable development training relevant to their key occupations. Experiences shared in the managers' stories show that various system and structural mechanisms play a role in how this comes to be the case. Access to higher education seems to be the main starting point in allowing access and articulation on their learning pathways. The quality of education, relevance of qualifications and reputable institutions appear to add significantly to this, further opening doors of advanced learning opportunities which would otherwise not be possible. The NQF also shows not to be accommodative of multiple qualifications at the same level (except for building horizontal learning pathways which are currently poorly understood given the emphasis on vertical learning pathways) and also on issues of leadership and strategic planning skills so critical for management level. Previous experience accumulated over the years also does not seem to count in the NQF structure in shaping the managers' learning pathways as RPL systems in local government contexts do not appear to be working as a mechanism in the learning pathways development system. Access to resources such as training opportunities closely related to legislative requirements are shown to create imbalance of skills and consequently affect learning pathways. Associations with professional bodies relevant to key occupations seem to play a role in skills development but do not show points of access or articulation on the QCTO system and therefore remain somewhat 'invisible' in formal learning pathways' construction. Inefficiency of the skills planning and provisioning system within the Municipality consistently shows a concerning factor which seems to be seeding a 'vicious cycle' of ongoing structural problems related to skills provisioning, affecting the managers concerned but also the workers and supervisors as shown above. Issues of inadequate capacity, quality of education and mismatch of skill reflect negative influences on skills development

	and consequently cause a major constraint in the managers learning pathways.
--	--

6.5 Conclusion

This chapter has provided ‘depth analyses’ of the empirical experiences and the events that have shaped them (reported in Chapters 4 and 5 respectively). This chapter has shown the interacting systemic and structural mechanisms that shape learning pathways actualisation or non-actualisation. It has pointed out that such mechanisms do not ‘act alone’ but are inter-acting with other mechanisms, which *together* need to be analysed and engaged for pro-active approaches to sustainable development of learning pathways in local government contexts such as Makana Municipality. This analysis has shown that the NQF and its subsystems are not the only shaping forces in learning pathways construction, but that these need to be understood *in relation to* other workplace and agency-based shaping forces which *together combine* to shape and construct learning pathways for sustainable development.

In the next chapter, I summarise the study, and provide recommendations for further research.

CHAPTER 7

DISCUSSION AND RECOMMENDATIONS

7.1 Introduction

In this chapter I conclude the study using a set of analytical statements and recommendations provided for each analytical statement. These are not ranked in order of importance; they are all equally important and necessary. The conclusions and future research implications take into account the integrative summary of findings presented in three layers covered in Chapter 4, Chapter 5 and Chapter 6. I address the research question directly, which as discussed in Chapter 1, is focused on learning pathways of key occupations relevant to sustainable development in Makana Municipality. The research addressed the following two goals:

- (a) To investigate learning pathways for three occupational categories (workers, supervisors and managers) relevant to sustainable development, and how they are shaped and experienced.
- (b) To identify system and structural factors influencing articulation and access relevant to progress in learning pathways relevant to the key occupations.

As shown in Chapters 4, 5 and 6, rich insights into the question were derived from the data through the methodology and theoretical framework applied.

7.2 Reviewing and Commenting on the Process of Investigating Learning Pathways

When I commenced with the analytical process in Chapter 4, I had no idea that the outcome would be so excitingly revealed. Since I had no preconceived or predetermined outcomes about the process, I worked with the data from the career stories as captured and as reflected by the sources. Most importantly, the review of the literature and document analysis combined with retroductive analysis helped identify some systemic and structural aspects that needed attention in the context of experiences (Chapter 4) and events (Chapter 5). This analysis (Chapter 6) helped to identify some of the causal factors and deep-seated elements that require engagement if pro-active learning pathways are to be established for sustainable development in local government contexts.

I, however, only began to grasp the full implication of this after I had the opportunity to attend the International Association of Critical Realism Conference in July 2012 at Rhodes University, Grahamstown, South Africa, after which I felt that my study was abuzz with clarity and guidance. When Roy Bhaskar personally presented a post conference workshop on the 20th July 2012, he remarked that *“we write the theory for you to use as a guiding tool to understand your research work, it is not ours, use it at liberty to bring about change”* (Bhaskar, personal communication, July 2012). This statement grasped my full attention. It got me thinking of alternatives to the current situation as revealed in my study, and how they can be changed, ‘real’ possibilities for change. This assisted in building the foundation of Chapter 7. In another statement, which also caught my attention, Bhaskar added, *“If you find that you still use the theory as ascribed in the book conservatively, you are not there yet. It is when you are able to relate the theory to ‘real’ life situations that you know you are there!”* (Bhaskar, personal communication, July 2012). This explanation of using critical realist theory, helped liberate my conservative mind in understanding some of the relevant principles which I consequently applied to my study directly relating to the reality of the situations I encountered in derived data. These principles include:

- Information - what you know about it,
- Knowledge - information and explanation taking you to the next level,
- Wisdom - knowledge and correct values,
- Context - social context plays a critical role.

As shown across this thesis, workers in Makana Municipality were reflected as the most vulnerable group, affected mostly by poor socio-economic standing, lack of freedom and choice to shape their learning pathways. Through this I developed a deeper understanding of how understanding social context is important in understanding learning pathways. Amongst the workers I found solidarity (doing things for each other, helping each other on work matters), yet their individual stories mention that freedom can either be actualised or negated (Bhaskar, 1993). As already noted in the previous chapters for workers, freedom of experiencing learning pathways is negated. The supervisors’ and the managers’ freedom reflects less hindrances and was experienced differently. This will be discussed more fully

in this chapter. To discuss this, I use a set of analytical statements as these help to sharpen the discussions of the analysis presented in previous chapters.

7.3 Analytical Statement 1:

The workers low level education experiences, combined with ‘system neglect’, inefficiency, and power relations shaped non-existent and hardly existing learning pathways

In the case of the workers, there is evidence that their learning pathways are the product of a process manifested over a period of time. They are a product of the past apartheid education system. The past is in them and this is evident in the low quality and limited education which is creating experiences of none existing and hardly existing learning pathways as was evident in WA1-WA9’s early education history described in Chapter 4. They had literacy challenges, and some of the workers have very little schooling experience while others hardly have any. This is reflected also in the report by Wigley and Sisitka (2011), which reports that the majority of workers involved in environmental practices have little if any formal qualifications, few have Matric, and generally have very low literacy levels. Seniority in position, if any, tends to be achieved through length of service rather than through formal training and qualifications. From this it is possible to see how workers’ learning pathways are constructed, not by their own choosing, but by underlying structures and mechanisms of an historical nature. Bhaskar and Lawson (1998, p. 5) note that:

.... the intelligibility of experiments presupposes that reality is constituted not only by experiences and the course of actual events, but also by structures, powers, mechanisms and tendencies – by aspects of reality that underpin, generate or facilitate the actual phenomenon that we may (or may not) experience, but are typically out of phase with them.

This situation is out of sync with democratic values, social justice, and human rights and the Bill of Rights which is the “cornerstone of democracy in South Africa. It enshrines the rights;

(a) to a basic education, including adult basic education;

(b) to further education, which the state, through reasonable measures, must make progressively available and accessible; and

(c) to redress the results of past racially discriminatory laws and practices”. (RSA, 1996, p.1257).

Chapter 2 indicates that Makana is in the rural Eastern Cape Province. In this province educational development and redress is lagging behind other parts of the country as the province is large, and is disproportionately affected by past forms of historical segregation policy (the majority of people live in former ‘Bantustan Homelands’). It is also in this context that Cameron (2001) discusses the need for promoting rural local government capacity. The HSRC (2009) reports further that poverty of education in rural areas is integrally linked to inadequate employment of the rural poor and vulnerable groups in rural areas, which was shown to affect some of the workers in this study (section 4.2). Such situations need to be redressed as they are directly linked to the past injustices of education and unequal power relations. Patel (2000) suggests that high levels of poverty and the history of unequal access to resources and power in South Africa create the need to approach sustainable development in an integrated and holistic manner. This, as shown in this study, requires taking the social aspects which play a critical role in determining change into account.

DEA (2010) acknowledges that “...these historical difficulties in the education and training system are driving a need to improve the quality of skills development in South Africa...” (p. 15). This is further endorsed by NSDS III in recognition of the fact that South Africa has a poor pool of foundational skills which need to be upgraded in the workforce. This recognition of a desperate need for workplace learning opportunities to be availed for the workers is long overdue and ought to be non-negotiable. They call for Makana Municipality to equally abide by this need in order to start with the process of addressing the education situation. Education is critical and key to opening new doors of opportunities. As found in this study, workers are neglected by the system of skills provisioning, not only at municipal level, but also more widely. Workplace skills planning is not functioning for them, and ABET training is not operational, despite the fact that ABET was identified by LG SETA (2000) as a fundamental area of priority.

In this study, workers explained that ABET was once provided but stopped because of transport issues after hours. As previously explained in Chapter 6, workers’ learning pathways are severely hampered by such systemic issues, which in turn hampers their opportunities for education and development. Rosenberg (n.d) recognises the disempowered context of workers, when she comments that they may

have little sense of how they can deal with such situations while trying to deliver on the core functions in their key occupations.

What is required in this context, is a shift in mind set (thinking out of the box) and flexibility in working hours for both the workers and the ABET teachers, as is already stipulated in the ABET policy document (REF), but not practiced. Some level of sacrifice has to be reached between the workers and the practitioners. Some possible solutions exist, for example, workers could use their lunch breaks so that they can attend ABET classes which would reduce the issue of transport after working hours, the accounting officials could plan, budget and provide special transport for the registered ABET workers after hours, or ABET classes could be offered near to where workers live. Consideration of sufficient hours a week in order to fulfil the requirement of ABET should be taken seriously. Also, the Municipality should be willing to pay both the drivers and facilitators double pay for after hours work completed. A synchronised system would have to be in place for this to be fully and sustainably accomplished.

The hardly existent learning pathways of the workers, and the system failures to provide for these poses a challenge for SAQA's intention to establish clear pathways to link the three sub-frameworks of the NQF. Without addressing these systemic issues, the challenge will persist. This situation is a reflection of significant discontinuities and gaps in the system of learning pathways provisioning identified by DEA (2010), affecting the environmental sector and sustainable development of the country at all levels, including local government level, as shown in this study.

Giving attention to structural and societal mechanisms, as shown in the case of the workers, is necessary in understanding learning pathways provisioning, and for understanding to the meaning of learning in the workplace at the level of elementary occupations. There is an assumption that the NQF is a key vehicle to facilitate access to mobility and progression within education, training and career paths and to advance personal, social and economic development. The reality in the case of the workers is that it seems that the NQF 'distances itself' from the extra ordinary circumstances of social demands influencing learning pathways, and inadequate attention is given to the boundary crossing practices that are needed to address

inefficiencies and system building aspects such as efficient workplace skills planning.

Young (2003) comments that international experience cautions what an NQF can achieve in the absence of other reforms. The absence of workers' social reforms would have to be absented first if the NQF is to achieve its objectives. Compliance-based workplace skills planning and proclaiming ABET a priority are seemingly an inadequate mechanism for ensuring efficacy of learning pathways development. The dynamics of worker's learning pathways and efficiency in skills planning and provisioning systems demand a critical reappraisal if NQF objectives and principles are to be met for workers. It seems the past inequities of poor and limited education and the new inequities caused by inefficient system elements are not mutually exclusive; they are serving to maintain under-educated workforces with little freedom pertaining to their learning pathways construction.

7.4 Analytical Statement 2:

The supervisors' and managers' learning pathways are mainly educationally and occupationally directed, are constrained and affected by system factors, but also show more agency than workers' learning pathways

One of the key findings in this study is that learning pathways for the supervisors and managers exist. The experiences reflected in the career stories described in Chapter 4 and the associated events constructing learning pathways reported for these two groups in Chapter 5, and consequently the underlying reasons why the situation is so in Chapter 6 endorse the fact that the supervisors' and managers' learning pathways are occupationally directed, although supervisors appear to be struggling to construct relevant learning pathways, perhaps more so than the managers.

Identified in the key findings is smooth mobility from high school to higher education, shaping the supervisors' and manager's learning pathways. In both cases, school subject choices that allowed for various forms of access to higher education and to sustainable development learning pathways were shown to be significant. At face value, this agrees with McKenzie (2000) that one of the elements of providing a coherent structure of learning pathways is a set of *interrelated* experiences providing for *progression*. In Chapter 5, I indicated that all the supervisors and

managers in this study have a school leaving qualification and a formal qualification varying from College to University, and some of the managers have post-graduate qualifications. In both cases, the emphasis is on higher education experiences (CHE linked), with very limited workplace learning experiences related to sustainable development, especially for supervisors (QCTO linked). This situation typically represents a concern raised by Mukora (2008) that most South African educational research to date has focused on formal education settings at the expense of workplace learning.

It would seem therefore that the dynamics of continuity in the workplace in relation to learning pathways need to be taken into account. Young (2003) states that overemphasis on the structures of the NQF gives an impression that there is no integration between CHE and QCTO and that other issues associated with the NQF are not given the attention they deserve. When the NQF was introduced, one of the objectives was to create a coherent education and training system that would smoothly lead into work (Doc-06). The NSDS III (DHET, 2011) also encourages integration to facilitate individual learning pathways from school, college or university to sustained employment and in-work progression. Evidence from this study related to the variations in the supervisors' learning pathways shows that to date this may not have been as successful as intended. How to address this problem is of current interest in South Africa, in efforts to establish a more coherent education and training system for post-school education, currently being debated through the release of a Green Paper on Post-School Education (DHET, 2012). However, even in these discussions minimal attention is given to individual experiences of learning pathways and it seems that there is little understanding at systemic level of how the gaps in learning pathways are interconnected.

While Harris and Rainey (2006) indicate that the direction of a learning pathway is often not known in advance, it may not be adequate to simply leave learning pathways for sustainable development to 'haphazard chance' as was seen to be the case in some of the supervisors' learning pathways in this study, especially in the light of the rapidly growing demands for effective service delivery and sustainable development. From such a contextual argument, it is possible to suggest that the direction the learning pathways have to take, be known, understood and more effectively provided for in the context of the key occupations in question as was

seen in the case of one of the supervisors involved in water and sanitation management.

Scott and Vare's (2007) principle which promotes informed skilled behaviours and ways of thinking is needed to address this kind of a situation. The other alternative is to create stability in the key occupations the supervisors' are already occupying within the Municipality. This implies focusing primarily on relevant skills development in these key occupations. This way, the career path gaps and sectoral gaps experienced can gradually be reduced and decisions can be based on informed and sustainable development practices.

As things currently stand in the Municipality, a considerable amount of time and effort is spent on general short courses which are more generally occupationally directed. They place emphasis on informal qualifications and are often not relevant to sustainable development. This results in workplace training which is diverse and generalised and which does not address specific issues related to sustainable development practices, or further learning pathways in this area, affecting efficiency. Keevy's (2007) argument that the QCTO needs to be strengthened in order to address issues of skills needs and gaps is relevant to this issue.

Access to professional qualifications that are occupationally related to sustainable development seems a challenge due also in part to inadequate systems of study leave and bursaries, an issue also experienced by the managers. As learning pathways are diverse, there is a need to focus on each individual supervisor, and to facilitate development of their career paths in relation to possible opportunities. This involves careful skills planning with associated opportunity access, which is not well provided for in the Municipality at present, as shown by the data. As the focus is sustainable development, there is a need for greater synergy in skills planning between the LEAP, the Environmental Education and Training Strategy of the Municipality and the Human Resources Section. Individual supervisors and managers also need to be consulted, and adequate funding needs to be allocated and possible opportunities need to be developed, for example, an expanded partnership with the SUS Programme to include all supervisors may be possible.

As shown in Chapter 4 and 5, there are also issues of inappropriate placement which affect skills development and lead to complexity in learning pathways related to

sustainable development. The inappropriateness of placement defeats the purpose of one of the expected outcomes of the NSDS III (DHET, 2011) in ensuring that career paths are mapped to qualifications in all sectors and sub sectors, communicated effectively, and which contribute towards improved relevance of training and greater mobility and progression. This shows that learning pathways construction crosses boundaries between education and training provisioning and Human Resources Development systems and planning.

As reported in Chapters 4 and 5, there are also gendered aspects to learning pathways construction, and it was noted DEA (2010) expressed concern on the shortage of professional black females in the environmental sector. Availability of non-gendered training opportunities was shown to be important in addressing this issue in the case of the managers, but there was no evidence of a transformative process which is gender sensitive in the Municipality's approaches to skills planning and development related to sustainable development. This is therefore also an area that could potentially be strengthened with regards to learning pathways construction.

From this analysis, it is clear that as in the case of the workers, there are a range of inter-acting system and structural factors that shape the emergence of supervisors' and managers' learning pathways. These differ, however, from those shaping the learning pathways of the workers, especially since the supervisors and managers were able to access higher education, which appears to have strongly affected their abilities to make decisions that can further influence their learning pathways. Of interest to this study is that all supervisors and managers interviewed were interested in developing their learning pathways, and that many were engaged with various programmes and processes to strengthen their learning pathways. They showed more freedom and agency in construction of learning pathways than the workers, yet their learning pathways were also hampered by different factors such as educational histories, system skills planning inefficiencies and other structural factors, all of which require attention if sustainable development learning pathways are to be more pro-actively constructed in local government contexts.

7.5 Analytical Statement 3:

Working conditions influence the workers' supervisors' and managers' learning pathways.

In the case of the workers poor working conditions influenced their learning pathways, as reported on in Chapters 4-6. This included issues such as lack of protective clothing, no proper working resources for carrying dead animals, and no medical checkups. These appear to contravene policy commitments to environmental management and sustainable development at local government level, and as reflected in national policy. Related to this are issues of absenteeism caused by ill health reported also by Wigley and Sisitka (2011). Wigley and Sisitka concur that working conditions which include lack of adequate staffing, lack of equipment and lack of skills, cause severe constraints to learning and to learning pathways development. These multi-layered conditions need to be corrected if the workers' rights are to be realized, and if conditions conducive to learning are to be created. Illeris (2011) makes the point that workplace learning takes place in the encounter between the learning environment of the workplace and the worker. The little attention given to the working conditions in the Municipality in relation to the 'working environment' and their 'work' does affect learning pathways. There is also a culture of embedded poor work ethics which has to be considered in this context, if an adequate response to the Municipal Systems Act of 2002 is to be found which seeks harmony for the social and economic upliftment of the workers.

The supervisor's working conditions impact on the learning pathways, albeit in a different way to that of the workers. Working condition issues that influence their learning pathways include insufficient financial support for study opportunities and lack of appropriate resources. Furthermore, even when going on relevant training, it is often not possible to implement what is learnt because the working environment is not enabling, as was reported on in Chapter 5. As discussed in Chapter 5, the training policy also states that it is committed to skills programmes which integrate education and skills training thus providing a work-based route to a qualification. The discrepancy between what is on paper and what is actually happening is reflected in the continued attendance of short courses not leading to any qualification even where critical skills should be prioritised. There is a need to align

the job description to the LEAP document in relation to key skills required in key occupations. This should be implemented, monitored and continuously reviewed.

Compared to the workers and supervisors, the managers have better working conditions. The working conditions are, however, still constraining in certain ways, for example, the Environmental Manager's functions are isolated and not well integrated into other departments including the HR workplace skills planning system as was shown in this study. There is need for a structure that allows for integration of roles and responsibilities for sustainable development, including the holistic planning of skills development and ongoing implementation of the LEAP. As shown in this study, all key occupations play a significant role in how the entire system functions and is managed in relation to sustainable development.

The workplace 'climate' is an important factor in an organisation such as Makana Municipality. Communication between different elements of a system, Luhmann (1995) argues, is important for enabling systems functioning and adaptation to new environmental factors. Access to communication tools and processes at the 'boundaries' of different system elements such as communication between the Skills Development office (not represented in Figure.1) and the Environmental Management office is therefore important, and also influences learning pathways in a major way. The key relationship between these two critical departments which help shape training events as explained in Chapter 6 is critically important for the effective and pro-active establishment and implementation of a sustainable development learning pathway. The Municipality system in its current state does not seem to fully embrace the relationship between these two departments and the impact they have on learning pathways. This current state of affairs is affirmed by Morgan (2005) who mentions that key relationships can easily be mis-characterised and the crucial point of systems thinking, focusing on processes, patterns and relationships is completely missed.

In my earlier contextual profiling research (Mohano, 2011) I highlighted the essential need to understand the systems elements and processes, including communication processes and the importance of holistic sustainable development planning in influencing learning pathways. This study has further identified the importance of recognizing social systems and other inter-acting mechanisms

function in a complex, multi-dimensional, open, constantly changing system, shaping learning pathways. The working conditions of the environmental management office in relation to all relevant departments related to sustainable development as they currently stand demands a solid, coherent and integrated system. This condition is well articulated by Senge (1990) who suggests that sustainable work ability is promoted when work is perceived in a systematic manner, and its purpose, elements, and interactions are related well with the work of others, and eventual organisational outcomes are broadly recognised. For Makana Municipality, this means providing the environmental management office with stronger support and recognition for the 'integrative' role that it plays in enabling sustainable development and sustainable development learning pathways.

7.6 Analytical Statement: 4

Lack of capacity has a hampering effect on the workers' and supervisors' learning pathways

Within the Makana Municipality system in total, are sustainable development departmental structures, within departmental structures are the individual workers in key occupations, within key occupations are key responsibilities, within key responsibilities are key functions, within key functions are key skills, within key skills are key capacity building issues which need attention. These facts highlight the fact that in all of this in total, job descriptions play a powerful role in addressing the key capacity issues which directly influence learning pathways of the workers. A sense of direction can evolve from here and assist in a career path to be followed and a mission which the training policy of Makana Municipality seeks to accomplish. In Chapter 4, I mentioned that job descriptions for the workers are never followed and are virtually 'absent'. The lack of job descriptions makes the issue of capacity development more difficult, as no benchmarks exist for evaluating what capacity building is necessary. This retards a pro-active approach to skills and capacity development, and entrenches a vicious cycle of re-active or no skills development, a point also noted by Wigley and Sistka (2011). Normal components of the workers' job description would encompass a description of the key occupation with general areas of responsibility attached. Key functions of the occupation would be reflected. Key knowledge, required skills and abilities would

also be attached. These would serve as a guiding tool in addressing key skills issues in demand. Such a guiding tool can also be used as a basis for resolving the problems associated with filling in forms every year with no outcomes. Most importantly is to ensure that the job descriptions are reviewed annually in order to keep up with the rapidly growing demand of skills development in the environmental sector and within Makana Municipality. This will also ensure the job descriptions reflect what the worker is expected to be doing and what the municipality expects of the worker, and could also establish a professional basis for supervisor/manager relations, and assist with the mapping out of learning pathways for workers.

The context of lack of capacity in the situation of supervisors is different from the workers. As discussed in Chapter 4, all supervisors have job descriptions indicating expected outcomes. The main concern, however, revolves around an identified list of duties/tasks which are supposed to be carried out daily. Administrative duties seem to take more time than the key work related to sustainable development. This leads to a situation where sustainable development practices suffer at the expense of cumbersome administrative work. A fully employed person would be required to focus specifically on the administrative work, allowing for more effective implementation of sustainable development practices which would help to bring about more mobility and progress in learning pathways for sustainable development.

The supervisor's lack of development of both old and new skills for sustainable development on the whole indicates lack of capacity. In Chapter 5, I highlighted the context of the one supervisor in particular attending short courses relevant to sustainable development (waste management) but which did not lead to a formal qualification. His situation is aggravated by inadequate working conditions and lack of the required resources to help him implement what he has learnt from the short courses. Bearing in mind how critical waste management is in relation to sustainable development, it is of concern that the supervisor in such a key occupation has to function in a malfunctioning environment of this kind. Reversals of such situations are recommended by DEA (2010), and by the Makana LEAP and its Environmental Education and Training Strategy as mentioned in Chapter 5. Atkinson (2002) raises the same concern that municipality's lack of capacity goes

beyond just acquiring skills but has been identified as a crucial blockage in delivery of service. The issue of service delivery cannot be dissociated from capacity. Cameron (2001) reasons further that local government should not be seen as mere service delivery agents, but rather as dynamic agents for economic, social and cultural development. To reverse this situation, there is need for updating of old skills, introduction of new training programmes with support for implementing what is learned, while also attending to working conditions. Additionally there is need to continuously introduce new knowledge with opportunities for application, effectively introducing an ongoing approach that can be characterized as change oriented learning as proposed by Lotz-Sisitka (2008), which supports *broader societal transformation to a more sustainable and equitable future* (Lotz-Sisitka, 2008). For this to occur there is a need for capacity development in the environmental management office (to lead a pro-active approach) and in the skills development office (to pro-actively provide for such an approach to skills development).

There is also a need for functioning systems of RPL (recognition of prior learning) as highlighted in Chapter 6. This study identified that amongst both supervisors and workers are people who have years of experience with little vertical learning pathways development taking place. RPL could assist with recognizing their experience and opening up new possibilities for learning pathways. For this, however, further capacity in the form of qualified assessors is required in the HR and skills development departments, and in the wider system, as it was noted in Chapter 2 that RPL systems are not functioning well yet in the wider landscape of skills development in South Africa.

Wider analysis by DEA (2010) has shown that the whole system of training provision in the workplace learning on sustainable development practices is reactive. A pro-active strategy which involves a mentoring process is important to be introduced in the Municipality, particularly in cases where officials are in key scarce and critical occupations such as water and sanitation mentioned above. As reported on in Chapter 5, the managers were making use of mentors, or had good mentors in the past, but a mentoring system was not available to supervisors or workers. If these capacity development issues could be addressed, a more pro-active approach

to access, progress and mobility on learning pathways for sustainable development would be possible.

7.7 Analytical Statement: 5

A re-active approach to skills development for sustainable development influences the managers' learning pathways

Evidence provided in Chapters 4-6 indicates that the managers' learning pathways are influenced by experiences of being involved in projects related to sustainable development. Their involvement in sustainable development projects deceptively shows no mobility or progression on their learning pathways as these are experience based and not qualification based. Such projects often require managers to use new knowledge, skills and forms of experience which they are accessing through various means such as professional bodies, workshops, consulting with colleagues, and attending training programmes. This shows that there is an ongoing demand for up-skilling and upgrading of key skills for sustainable development. What was interesting is that there is no pro-active approach to this, and managers are left to 'find their way' in developing the skills necessary for sustainable development. At times they are also not well supported to obtain such skills (as was the case with the environmental manager who could not access adequate funding for his training in environmental engineering, or the LED manager who could not get time relief to attend training). As mentioned above DEA (2010) has commented on the re-active approach to skills development that characterizes the South African landscape, a finding confirmed in this study. The DEA (2010) calls for development of new skills for sustainable development and further emphasises an urgent need for re-skilling and up-skilling in environmentally related occupations in LG SETA. Planning skills in working on related aspects within various departments is also important for the managers. The importance of a joint venture in planning as managers will assist in responding to the issue of complex environmental functions and the poorly integrated system in the Municipality of Makana. An integrated system to drive sustainable development practices and skills planning and to promote an enabling working environment for sustainable development is needed to address the re-active approach that is even evident at management level, despite the fact that managers were much more mobile and able to construct relevant learning pathways. Illeris (2011) agrees that it is important to remember that work-related

learning increasingly takes place not only in the physical workplace, but also, for example, through courses, networks and exchange schemes as was also noticed in this study. Pro-active skills planning should recognize this ‘mix’ of ways in which learning pathways for sustainable development are constructed at management level, but also at other occupational levels. Such an approach should also address the current imbalances of training provisioning, with equal attention being given to all scarce and critical skills.

7.8 Analytical Statement: 6

The quality of Workplace Skills Planning influences the workers, supervisors and managers training and development of skills related to sustainable development

As repeatedly raised across this study, workers’, supervisors’ and managers’ learning pathways are negatively affected by poor workplace skills planning for sustainable development. The 2011/12 WSP revealed a non-inclusive approach, which has led to the absence of training and development related to sustainable development. This situation points to a double challenge which also alludes to the issue of capacity as discussed above.

According to the Skills Development Levies Act 9 of 1999, an employer can reclaim his/her levy payment by submission of a WSP to the relevant SETA, in the context of this discussion, LG SETA. For this purpose to be facilitated, the LG SETA provides a format for the development of the WSP for the municipalities. However, this format as provided does not cater for sustainable development practices and a cross-disciplinary and integrated approach as highly recommended by DEA (2010). Under the thirteen skills categories provided and recommended to be prioritised for training by the LG SETA format, a fourteenth category should be included to incorporate sustainable development, cross-disciplinary and an integrated approach which would be accessible and user friendly. The fact that the WSP is non-inclusive, and ineffective for guiding and providing for training and skills development for the workers, supervisors and managers influences learning pathways negatively. Owing to this neglect of environmental and sustainable development training and skills development in the LG SETA system, there is therefore a desperate need to recover this capacity proactively rather than being reactive in this regard.

Capacity in being able to handle extra ordinary situations such as a non-inclusive WSP and aligning it to requisite skills is important in Makana Municipality. It is extra ordinary situations such as the format of the WSP that demand thinking out of the box and call for applying extra ordinary measures to ensure that the strategic objectives of the LEAP are realised. Recommendations and guidelines for this were provided in the Makana Environmental Education and Training Strategy in 2004, but were not used, indicating the lack of responsive and reflexive capacity in the skills planning unit. DEA (2010) recommends that it is necessary to build capacity for building capacity and enabling innovation. This is of primary importance as the LEAP strategic objectives revolve around building capacity for environmental management and sustainable development categories. Although this is a long-term approach, it serves the purpose of skills development and requisite knowledge.

This study has also shown that it is important to align the WSP to individual capacity needs, to occupational category needs, to the Municipality's capacity needs and to wider sustainable development needs, and that it should be informed by available environmental education and training, and where this is lacking it should be pro-actively sought out or brought into being. This shows the complexity of this kind of skills planning. Realistically speaking, the HR structure as it currently stands, with a one person skills development office, is not sustainable for the Municipality, given some of the complexities associated with the training and skills development gaps as identified in this study. To be effective, there is a need for a breadth of knowledge and deep understanding of these complexities that inform issues of capacity and learning pathways of the workers, supervisors and managers.

In reality, the Human Resources (HR) system is meant to carry responsibility for ensuring training and development of the employees from the highest category to the lowest. As the word is self explanatory, resources and support systems for all human beings in the Municipality have to be provided in all forms, at all levels and as required by legislation, policy or strategy related to various occupations. In this context, the function played by the Human Resources system in Makana Municipality reflects lack of relevant resources and support in efforts to improve skills development in key occupations on sustainable development practices. This finding is supported by Mniki (2006) referring to the fact that the failure to implement sustainability principles was brought to the attention of the public in the

South African media during the campaigning for general municipal elections in 2000 and also identified the lack of required capacity to fulfil roles and responsibilities by the municipal personnel. The vital role played by the HR system within the Municipality in influencing sustainable development cannot be ignored as it impacts on the learning pathways of the key occupations, as shown in this study. There is therefore need to give a high level of attention to the vital role played by the interaction between the subsystems of HR in the Municipality and the sustainable development planning systems if a pro-active approach to learning pathways development is to be constructed from within the workplace. This focus on the total organisation is emphasised by Knowles (1980).

The skills development office is situated within the human resources system. As the name is self explanatory its core function is to provide skills development for all human beings in the organisation, in this context, Makana Municipality. The skills development officer is the person responsible to facilitate training and development in Makana Municipality. It is expected that this person should have experience and be qualified to manage all skills development issues related to the LG SETA. In Makana Municipality, it is imperative that this person also be an advocate of strategic objectives of the LEAP and the direct implications this has for the WSP. As the word is self explanatory, the workplace of Makana must have a plan for skills related to the objectives of LEAP as these have a direct bearing on sustainable development practices in key occupations and in influencing related learning pathways. The Environmental Education and Training Strategy for Makana provides good guidance on how such skills planning can be integrated into the WSP. Further efforts to realize these plans are therefore needed.

An effective performance management system linked to the WSP and LEAP strategic objectives also needs to be instituted in order to prioritise skills on sustainable development in all key occupations. Prioritising expected outcomes, time lines, monitoring and evaluating progress is invaluable in order to meet the demands of the rapidly changing and growing landscape of sustainable development. This will in return respond to the Integrated Development Plan (IDP) as required by the Local Government Municipal Systems Act [No. 107 of 1998] that authorities must prepare in accordance with the IDP, regularly monitor and assess performance against their IDP's.

It was encouraging to note that at the time that this study was being finalized, environmental practices training had been included in the new WSP for 2013, and the Municipality were discussing the possibility of running such training for the workers with the LG SETA, which in some way shows that the deliberations around skills planning associated with this study may have influenced the skills planning system in the Municipality. This shows that an ongoing system of interacting with the Municipality on sustainable development skills planning could assist the current situation. The Rhodes University Environmental Learning Research Centre is well placed to continue to support the Municipality in this regard.

7.9 Implications for Future Research

In the light of the findings of this study, a number of absences were identified in the process but owing to the limited scope of a full thesis at Masters level, they could not be pursued in great depth. It might be useful to undertake research to ‘absent the absences’ through transformative praxis, employing dialectical critical realist theory. Bhaskar (1998) recommends identifying real *absences* and probing what absences need to be absented for new being and becoming. For example, one could identify the absence of ABET training programmes for facilitating learning pathways for workers and seek to absent them by bringing new ABET programmes into being. However, as shown in this study, more fundamental would be to absent the lack of skills planning capacity as this would be core to the absencing the missing ABET programme in a more sustainable manner. Absenting therefore needs to be conceptualized as bringing new things into being through real negation involving the creation of possibility and opportunity at the deepest level (examples of bringing new things into being in the context of this study might be the structuring of new learning pathways through relevant, and registered qualifications on the NQF or through a pro-active, well functioning RPL system). There is a need to further research how these factors might influence learning pathways once absented and how they might bring about change and improve the quality of life particularly for the ordinary workers who are most neglected in local government generally and within Makana Municipality itself.

The primal issue of capacity for building capacity has been consistent throughout the findings of the study either directly or indirectly. To comprehend the full extent

of the impact of capacity on sustainable development, it is necessary to have a pro-active, futures oriented plan for the skills development continuum. Since this has a long historical precedence, the dire need for relevant and requisite skills development will have to be established within a long-term process approach. How each process is arrived at, reviewed, monitored, and evaluated is important for enabling a sustainable city in Makana. In the main, a vigorous transformation of these highlighted factors play a significant role in learning pathways as they affect service delivery. How to not only establish, but also how to structurally embed such a pro-active approach to skills planning and development for sustainable development requires further research.

7.10 Conclusion

This research attempted to investigate what learning pathways exist for three categories of key occupations related to sustainable development in Makana Municipality. The ‘voices’ in the career stories of the workers, supervisors and managers have shed some light on how learning pathways are shaped and experienced and what structures and systems influence articulation and issues on sustainable development. The data based on experiences at the domain of the empirical and events at the domain of the actual enabled me to arrive at the domain of the real, revealing systems and structures that intersect to shape the unexpected reality that learning pathways by their very nature are complex, interesting, and shaped by a host of intersecting factors. They are also a site where structure and agency and the relationships between structure and agency become visible. Power relations and capacity for freedom of choice plays an important role, even in contexts where working conditions are not always as favourable as they could be. This study has been able to show that learning pathways are complex, dynamic and diverse, and that the complexity of learning pathways is aggravated by inefficiencies, power relations, and a lack of a pro-active approach to sustainable development skills planning which permeates the South African landscape. Additionally, these environments are shaped and impacted by factors such as historical aspects, past educational injustices, and socio-economic issues. A pro-active, integrated approach to sustainable development skills planning is needed to turn the situation around.

The rapidly changing landscape of the South African context of environmental and sustainable development issues put immense pressure on the demand for training and skills development. This study has shown that a depth of understanding of emergent complex issues in relation to workplace skills planning and integration of the NQF subsystems and how they function in practice is vital. This situation argues for a holistic and integrated systems approach in order to realise the full impact as learning pathways cannot be understood in isolation. Learning pathways *are* the evidence of systemic integrations and functioning, as shown in this study.

REFERENCES

- Ary, D., Jacobs, L., Razevieh A., & Sorensen, C.** (2006). Introduction to Research in Education. (7th ed). Belmont,CA: Wadsworth.
- Association for the Development of Education in Africa (ADEA).** (2008) Post primary education in Africa. Challenges and Approaches for Expanding Learning Opportunities. Synthesis prepared for 2008 ADEA Biennale on education in Africa. (Maputo, Mozambique, May 5-9, 2008).
- Atkinson, D.** (2002). *Local Government, Local Governance and Sustainable Development*. Cape Town, South Africa: HSRC.
- Bassey, M.** (1999). *Case study research in educational settings*. Buckingham: Open University Press.
- Bhaskar, R.** (1998). Facts and values: Theory and practice. *Critical Realism Essential Reading*. M.Archer, R Bhaskar, A.Collier, T. Lawson, & A. Norrie (Eds), 409-417. London & New York: Routledge.
- Bhaskar, R.** (2002). *Reflections on meta-reality. Transcendence, emancipation and everyday life*. New Delhi: Sage Publications India Pty Ltd.
- Blom, R.** (2012). *Articulation in the South African Education and training Systems*. Draft paper for discussion.
- Burger, D.** (Ed). (2003). *South African Yearbook 2002/3*. Yeoville: STE Publishers.
- Cameron, R.** (2001). The Upliftment of South African Government. *Local Government Studies*, 27, 97-118.
- Cohen, L., & Mallon, M.** (2001). My Brilliant Career? Using Stories as a Methodological Tool in Career Research. *Intenational Studies of Management and Organization*, 31(3), 48-68.
- Cohen, L., Manion, L & Morrison, K.** (2007). *Research Methods Education*. New York: Routledge.
- Cooper, L & Walters, S.** (2009). Learning/Work. Turning work and lifelong learning inside out. *HSRC, Volume7, No.4, Nov 2009*.

Danemark, B., Ekstrom, M., Jakobsen, L., & Karlsson, J. (1997). *Explaining Society. Critical Realism in the social sciences*. Routledge.

Department of Education. (n.d). Policy document on Adult Basic Education and Training. Pretoria: Government Printers.

Department of Education and Department of Labour. (2003). An Interdependent National Qualification Framework System. Consultative Document, Department of Education and Department of labour. Pretoria, July 2003.

Department of Environmental Affairs & Tourism. (n.d). State of the Environment Report. Retrieved August 11, 2011. Available: http://www.environpaedia.com/topic/default.ph?topic_id257

Department of Environmental Affairs and Tourism. (September 2005). *A South African National Strategy For Sustainable Development – Rationale, Vision, Mission and Principles, Revised Draft*. Discussion Document.

Department of Environmental Affairs and Tourism. (1997). *White paper on environmental Management Policy for South Africa*. Pretoria: Government Printer.

Department of Environmental Affairs & Tourism. (n.d.). *Sustainable Development-South Africa's National Strategy for Sustainable Development*. Retrieved August 11,2011 from http://www.environpaedia.com/topic/default.php?topic_id=252.

Department of Environmental Affairs. (2010). *Environmental Sector Skills Plan for South Africa*. Pretoria: Government Printer.

Department of Environmental Affairs & the National Environmental Skills Planning Forum. (2010b). *Integrating the Environmental Driver into Sector Skills Plans: An enabling Document for All SETAs*. A document produced by DEA and the National Environmental Skills Planning Forum. Pretoria: Government Printer.

Department of Higher Education & Training. (2012). *Green Paper for Post-School Education and Training*. Pretoria: Government Printer.

Department of Higher Education & Training. (April 2011 to march 2016). *National Skills Development III*. Pretoria: Government Printer.

Department of Higher Education and Training. (n.d). *National Skills Development Strategy III*. Pretoria: Government Printers.

Department of Education & Department of Labour. (2003). *An Interdependent National Qualifications Framework Systems*. NQF Consultative document, Pretoria.

Edwards, A. (2005b). Cultural Historical Activity Theory and learning:a relational turn. *Paper presented at the TLRP Annual Conference Key note Address*, University of Warwick, November 2005.

Engestrom,Y. (2001). Expansive learning at work: towards an activity theoretical re-conceptualisation. *Journal of Education and Work*, 14 (1),133-156.

Enserink, B., & Koppenjan, J. (2007). Public participation in China: Sustainable urbanization and governance. *Management of Environmental Quality: An International Journal*, 18 (4), 459-74.

Finn, B. (n.d). *Young peoples participation in education and training*. Melbourne: Australian Education Council.

Flick, U, Von Kardorff, E & Steinke, I. (2004). *A companion of qualitative research*. Thousand Oaks, CA: Sage.

Flyvbjerg, B. (2011). Case Study. In N.K. Denzin & Y. S. Lincoln (eds). *Handbook of qualitative research*. (4th ed., pp 301-316). Thousand Oaks, CA: Sage.

Garcia, B. (2006). Learning conversations : Knowledge, meanings and learning networks in Greater Manchester. *Journal of Knowledge Management*, 10 (5), 99-109.

Guile, D. (2011). *Putting knowledge to Work : Re-Contextualising knowledge through Design and implementation of work based learning at Higher Education level*. The Sage Handbook of Workplace Learning. London: Sage.

Hamaamba, T. (2004). *Training needs for municipality employees: A case study of Makana Municipality*. Unpublished Masters thesis. Grahamstown: Rhodes University.

Hall, S. et al. (1978). *Policing the Crisis: Mugging, the State, and Law and Order*. Taylor and Francis.

Hart, G. (2007): Changing concepts of articulation: Political Stakes in South Africa Today. *Review of African Political Economy*, 34:111, 85-101.

Harris, R., Rainey, L., & Summer, R. (2006). *Crazy Paving or Stepping Stones? Learning pathways within and between vocational education and training and higher education*. NCVER research report. Australian Government.

Hellquist, A. (2012). *The Supporting Urban Sustainability programme looks forward*. SWEDES Newsletter. Sweden: The Swedish International Centre of Education for Sustainable Development.

Horan, S., & Palmer T. (n.d). *Makana Municipality Local Environmental Action Plan: Environmental Management System for Makana Municipality*. Grahamstown

HSRC. (2009). *Capital Development Strategy in the Biodiversity Conservation Sector, Research Report Produced for The Lewis Foundation and South African National Biodiversity Institute (SANBI)*.

Illeris, K. (2011). *The fundamentals of Workplace Learning, Understanding How People Learn in Working Life*. New York, NY.

International Institute of Sustainable Development (IISD). (2009) *What is Sustainable Development* . Retrieved March 20, 2012, from <http://www.iisd.org/sd/>

Keevy, J. (2009). *The integration of education in training in a comprehensive linked national qualifications framework : A critical reflection on recent developments in South Africa. Conference proceeding*. 5th international conference on research work and learning (RWL5). Cape Town, South Africa.

Kira, M., Van Eijnatten, F.M., & Balkin, D.B. (2010). Crafting sustainable work: development of personal resources. *Journal of Organizational Change Management*, 23 (5), 616-632.

Knowles, M.C. (1980). *Organisational functioning. A behavioural analysis*. England: Gower Publishing Company Limited.

Lee, B., & Cassell, (2009). Learning organizations, employee development and learning representative schemes in the UK and New Zealand. *Journal of Workplace Learning*, 21 (1),5-22.

LGSETA. (2009). *Sector Skills Plan*. Taken from the World Wide Web on 2/03/2012 at <http://www.lgseta.co.za/ssp/SitePages/Reports.aspx?RootFonder=%Fssp%2FReports%20Documents%2FSSP%20and%20Research%20Reports&FolderCTID=0X012000BC88AC9720E35D4799890DAFE6B5D272&View={51B3125D-B93C-4ED1-AC28-21E1B178D814}>

Lotz-Sisitka, H & Janse Van Rensburg, E. (2000). *Learning for Sustainability Project: Contextual Profile*. Learning for Sustainability project,2000.

Lotz-Sisitka, H. (2004). *Positioning Southern African Environmental Education in a Changing Context. A discussion paper commissioned by the SADC Regional Environmental Education*. South Africa: SHARENET.

Lotz-Sisitka, H.B. (2008). Change oriented workplace learning and sustainability practices. Research proposal for the SAQA Work and Learning Research Partnership Programme. Rhodes University, Grahamstown. South Africa.

Lotz-Sisitka,H. (2008). Environmental education and educational quality and relevance: Opening the debate. *Southern African Journal of Environmental Education*,25,pp5-12.

Lotz-Sisitka, H. (2009). Insights from an environmental education research programme in South Africa. In L. Cooper & S. Walters (Eds.), *Learning/Work, turning work and lifelong learning inside out* (pp.351-363). South Africa: Cape Town, HSRC press.

Lotz-Sisitka, H. (2010). *Conceptions of quality and 'learning as connection': Teaching for relevance*. Paper produced for the 'Second International Policy Dialogue Forum, Providing Teachers for EFA: Quality matters conference. Amman,Jordan,July,2010.

Lotz-Sisitka, H. (2011). *Change-Oriented workplace learning & sustainable development practices* : Paper prepared for RWL7 Conference, Shanghai, China, December 2011. Rhodes University Environmental Learning Research Centre, Grahamstown, South Africa.

Lotz-Sisitka, H., Hamaamba, T., Kachilonda, D., Zondane, P., Kula, T., Olivitt, L., & Timmermans, I. (2005). *Makana Municipality Environmental Education Strategy*. Rhodes University Environmental Education and Sustainability Unit. Grahamstown: Rhodes University.

Lotz-Sisitka, H., & Lupele, J. (2012). *Education for Sustainable development Learning Processes in Sub Sahara Africa. A contribution to the Association of the Development of Education in Africa in Africa (ADEA) 2012 Triennale Conference.*

Lotz-Sisitka, H., & Ramsurup, P. (2011a). *Learning pathways, Articulation and Differentiation: Early conceptual explorations and implications for research design/s.* SAQA report, Grahamstown: Rhodes University,

Lotz-Sisitka, H., & Ramsurup, P. (2011b). *Absenting absences in learning pathways: A methodological exploration.* SAQA report. Grahamstown:Rhodes University,

Lotz-Sisitka, H., & Raven, G. (2009). *South Africa: Applied Competence as the Guiding Framework for Environmental and Sustainability Education.* Work Learning and Sustainable Development Opportunities and Challenges. 232-233.

Luhmann, N. (1995). *Social Systems.* California, Standford: Stanford University Press.

Maxwell, N. (1992). What kind of inquiry can best help us create a good world? *Science. Technology Human Values* 17:205-227.

McKenzie, P. (2000). *Pathways for youth in Australia.* Conference on Vocational Training and Lifelong Learning in Australia and Germany. Germany.

McKenzie, P. (2000). *Youth pathways to promote lifelong learning.* CEET conference on Mobilising resources for lifelong learning. Melbourne.

McKenzie, P. & Hillman, K. (2001). *Pathways from school to work.* Australian Council for Educational Research.

Magolis, D. (n.d). *Systems Theory.* Retrieved August 11, 2011 from <https://sites.google.com/site/davidmagolis/the-climb-psu/systems-theory>.

Makana Municipality. (2005). *Training policy.* Grahamstown.

Makana Municipality. (2004). *Workplace Skills Plan.* Grahamstown.

Makana Municipality. (2011/22). *Workplace Skills Plan.* Grahamstown.

Manuel, T. (2012). *Leadership for Nation-Building.* Ahmed Kathrada Foundation Annual Lecture. Pretoria.

Masara, C. (2010). Social Learning processes and nature-culture relation of commercial beekeeping practices of small and medium enterprise development in Zimbabwe. *Southern African Journal of Environmental Education*, 27, pp.9-21.

Masondo, A. (n.d). *Sustainable Development-Local Government*. Retrieved August 11, 2011, from http://www.enviropaedia.com/topic/default.php?topic_id=268.

McAuley, J., Duberly, J., & Johnson. P. (2007) *Organisation theory. Challenges and perspectives*. England: Pearson Education Limited.

Mckenzie, P., & Hillman, K. (2005). *Pathways from school to work*. Australia Council for Education Research.

Mniki, P. (2006). *An analysis of the implementation of sustainability principles in Buffalo city Municipality*. Unpublished Master's Thesis. Rhodes University, Grahamstown, South Africa.

Mohanoe, N.E. (1997). *Guidance-Counselling of black High School adolescents in post-apartheid South Africa*. Unpublished Thesis. Edinboro University of Pennsylvania, Pennsylvania, USA.

Mohanoe, N.E. (2011). *Contextual profile of Makana Municipality, Grahamstown, South Africa*. Unpublished assignment. Department of Education, Rhodes University, Grahamstown, South Africa.

Morgan, P. (2005). *The Idea and Practice of Systems Thinking and their Relevance for Capacity Development*. Discussion Document from Centre for Development Policy Management (ECDPM).

Morrow, W. (2007). *Plugging the gap: Short courses and continuous education. Chairperson's lecture*. Pretoria. South Africa: SAQA.

Mukora, J. (2009). *The evolution of SAQA's research directorate and its partnership model*. SAQA Update, 11 (2 & 3), 27-29. Pretoria. South Africa: SAQA.

Mukute, M. (2009). *Change Oriented Learning and Sustainability Practices*. Paper presented at the Work and Learning 6th conference. Denmark.

Mukute, M. (2010). *Exploring and expanding farmers learning of sustainable development practices in three southern African case study contexts*. Unpublished PhD Thesis. Rhodes University, Grahamstown, South Africa.

Muller, J. (2000). *Reclaiming Knowledge. Social theory curriculum and education policy*. London.

Mwase, G., & Keniry J. (January 2011). *Greenforce Initiative: Advancing Greener careers* Article from www.acteonline.org.

National Strategy And Action Plan For Sustainable Development. DRAFT 1: (23 February 2010).

Nelson Mandela Foundation. (2005). *Emerging voices: A Report on Education in South African Rural Communities*. Cape Town: HSRC Press.

O’Leary, Z. (2004). *The Essentials Guide to Doing Research*. New Delhi: Sage

Oliver, C. (2011). Critical Realist Grounded Theory: A new Approach for Social Work Research. *British Journal of Social Work*, 1-17

Olvitt, L. (2010). Ethics-Oriented Learning in Environmental Education Workplaces: An activity theory approach. *South African Journal Of Environmental Education*, 27,72-73.

Olvitt, L & Hamaamba,T. (2006). Identifying Needs and opportunities for Local Government Environmental Education and Training in South Africa. *South African Journal Of Environmental Education*, 23, 121-131.

Olivitt, L; Lotz-Sisitka, H. & Chetty, P. (2010). Exploring contradictions in ethics-oriented learning: activity system influences in an environmental education learnership. First draft research paper prepared for journal submission.

Patel, Z. (2000). Rethinking Sustainable Development in the Post-apartheid Reconstruction of South African Cities. *Local Environment: The International Journal of Justice and Sustainability* ,5(4), 383-399.

Patton, W. & McMahon, M. (2006). *Career Development and Systems Theory. Connecting Theory and Practice*. Second Edition. Rotterdam, Netherlands.

Parker, B., & Walters, S. (2009). *International Perspectives on Competence Development. Developing Skills and Capacities.* New York, NY.

Peden, M. I. (2008). Education for Sustainable Development: Knowledge and Environment in South African schooling. *South African Journal of Environmental Education*, 25, 14-15.

Podger, D.M., Mustakova-Possard, E., & Reid, A. (2009). A Whole-Person approach to educating for sustainability. *International Journal of Sustainability in Higher Education*. 11 (4), 339-352.

Price, L. (2007). *A transdisciplinary explanatory critique of environmental education.* Ph D Thesis, Rhodes University, Grahamstown, South Africa.

Price, L. (2012). (Two Concepts from Critical Realism that can Help us in our Research: Transfactuality and Concrete Universal/ Concrete Singular). Ph D lecture notes, Rhodes University, Education Department, Grahamstown, South Africa.

Raffe, D. (2003). Pathways Linking Education and Works: A Review of Concepts Research, and Policy Debates. *Journal of Youth Studies*, 6(1), 3-19.

Ritzer, G & Goodman, D. (2004). *Contemporary Social Theory.* New York: McGraw Hill.

Republic of South Africa. (1950). *Group Areas Act, No 41 of 1950.* Pretoria: Government Printers.

Republic of South Africa . (1996). *Constitution of the Republic of South Africa.* Cape Town: Government Printers.

Republic of South Africa. (1997). *Water Services Act (Act No. 108 of 1997).* Pretoria: Government Printers. South Africa

Republic of South Africa. (1998). *Local Government: Municipal structures Act 117.* Pretoria: Government Printers.

Republic of South Africa. (1998). *White Paper on Local Government.* Pretoria: Government Printers.

Republic of South Africa. (1998). *Skills Development Act 401.* Cape Town. South Africa.

Republic of South Africa. (1999). *Local Government: Municipal Structures Amendment Act No. 58 of 1999*. Pretoria: Government Printers.

Republic of South Africa. (2000). *Local Government: Municipal structures Act 32*. Pretoria: Government Printers.

Republic of South Africa. (2009). *National Qualifications Framework Act 67 of 2008*. Cape Town.

Rosenburg, E. (n.d). *Sustainable Development-Education*. Retrieved August August,11,2011, from http://www.environpaedia.com/topic/default.php?topic_id=262.

Sayer, A. (2000). *Realism and Social Science*. London:Sage.

Scott, W. & Gough, S (eds). 2004. *Key issues in sustainable development and learning: a critical review*. Routledge: London.

Sen, A. (1999). *Development as freedom*. Oxford: Oxford University Press.

Senge, P.M & Sterman, J.D. (1992). Systems thinking and organization learning: Acting locally and thinking globally in the organization of the future. *European Journal of Operational Research*, volume 59,Issue 1,26 May 1992, pp137-150.

South Africa. Department of Environmental Affairs. (2010). *Environmental Sector Skills Plan for South Africa*. Pretoria: Government Printer.

South African Qualification Authority. (2001). *General Education and Training Certificate (GETC)*. Pretoria.

Stark, M & Rand, G. P. (1995). *Weaving and Integrated Web: Multilevel and Multisystem perspectives of ecologically sustainable organizations*. New South Wales. Australia.

Sustainable Environmental Technologies cc and members of the LEAP Project Team. (2004). Makana Municipality Local Environmental Action Plan: Environmental Audit Report. Waste Management, Sanitation, Water Services and Industrial Environmental Management. Grahamstown.

Swedish International Centre of Education for Sustainable Development (SWEDES). (2011). Supporting Urban Sustainability (SUS). Unpublished SUS programme notes. Sweden.

Togo, M. (2009). *A systems approach to mainstreaming environment and sustainability in universities: The case of Rhodes University, South Africa.* Unpublished Thesis, Rhodes University, Grahamstown, South Africa.

Toumi-Grohn,T & Engestroom, Y. (2003). *Between school and work : New perspectives on transfer and boundary- crossing.* Emerald group publishing. Helsinki.

United Nations World Commission on Environment and Development policy. (1987). Routledge.

United Nations Conference on Environment and Development (UNCED). (1992). Earth Summit. Rio De Janeiro, 3-14 June 1992.

United Nations Development Programme (UNDP). (2010). UNDP: Millenium Development Goals.

United Nations Educational, Scientific and Cultural Organisation (UNESCO). (2011). *Education for sustainable development. An expert review of process and learning.* Paris, France: UNESCO.

University of Ballarat. (2009). *Learning Pathways Policy.* Australia: Ballarat University.

Vaughan, K. (2008). *Workplace Learning: A Literature Review.* Research report. New Zealand Council for Educational Research. New Zealand.

Van Schalkwyk, M. (n.d). *2006-The year of the National Strategy for Sustainable Development (NSSD).* Retrieved August 11,2011 from http://www.environpaedia.com/topic/default.php?topic_id=251.

Vare, P., & Scott, W. (2007). Learning for a Change: Exploring the Relationship Between Education and Sustainable Development. *Journal of Education for Sustainable Development* 1(2),191-198.

WESSA. (2002). The Johannesburg Call: A Statement by local governments of the world at the World Summit on Sustainable Development, Johannesburg, South Africa, August 2002. *Local Environment: The International Journal of Justice and Sustainability*, (7:4), 477-478.

WESSA. (2011). *Environmental Education and Training Needs Analysis.* Discussion Document.

WESSA. (2012). *Learning for Change*. Retrieved April 12, 2012, from [http://www.sustained.org.za/index.php?option=com_content&interview=article&id=9:news...](http://www.sustained.org.za/index.php?option=com_content&interview=article&id=9:news)

Wigley, J. (2006). *Understanding workplace-based learning contexts to inform curriculum development: The case of a level 5 environmental education, training and development practices qualification*. Unpublished Master's thesis. Rhodes University: Grahamstown.

Wigley, J., & Sisitka, L. (2011). *Environmental Education and Training Needs Analysis*. South Africa.

Young, M. (2003). *Options for the NQF in South Africa*. A Conceptual Critique of Interdependence Qualification Framework System: A Consultative Document Prepared by a Joint Task Team of the Departments of Education and Labour. Institute of Education. University of London.

APPENDIX A



CONSENT FORM FOR PARTICIPATION IN THE STUDY

PARTICIPANT'S NAME:

DATE: 28 February 2012

PRINCIPAL INVESTIGATOR: NTHABISENG MOHANOE, FACULTY OF EDUCATION, RHODES UNIVERSITY, REPUBLIC OF SOUTH AFRICA

INFORMED CONSENT

1. TITLE OF THE STUDY: Learning Pathways of key occupations relevant to sustainable development in Makana Municipality (for Masters Degree in Environmental Education, Rhodes University)

2. PURPOSE OF THE STUDY: This study seeks to understand how learning pathways of key occupations related to sustainable development in the context of local government are shaped and experienced.

3. PROCEDURES: I will first conduct a literature review on the topic. Thereafter, interviews will be conducted with individuals who are in key occupations related to sustainable development practices. The interviews will focus on views and experiences of these individuals in their context of work.

4. RISKS AND DISCOMFORT: There are no envisaged risks and discomfort to participation in this study.

5. BENEFITS: This study seeks to understand knowledge on learning pathways of individuals in key occupations in the context of local government and contribute towards benefitting to the field of the environmental sector and the South African Qualifications Authority (SAQA).

6. PARTICIPANT'S RIGHTS: Participants are free to withdraw from participation in the study at any time.

7. FINANCIAL COMPENSATION: There will be no financial compensation for participation in this study.

8. CONFIDENTIALITY: The confidentiality of participants in this study will be ensured through the employment of ethical principles as required by the Department of Education at Rhodes University. Real names of people will not be used in the study report.

9. FOR ANY QUESTIONS: Contact the investigator at 082 707 7956.

I understand my rights as a research subject, and I am willing to give my voluntary consent to participate in this study. I understand what the study is about and how and why it is being done. I will receive a signed copy of this consent form.


Subject's signature

Signature of investigator 

Date: 28/02/2012

APPENDIX B



14 February 2012

Dear Sir/Madam

INTRODUCTION OF MS NTHABISENG MOHANOE

This letter serves to introduce Ms Nthabiseng Mohanoe. She is currently registered as a Masters Student at Rhodes University in the Environmental Education research programme. She is undertaking a study focusing on learning pathways of key managerial occupations related to sustainable development in Makana Municipality. Ms Mohanoe's study will feed into a larger body of research that is informing skills development planning for environmental occupations.

For her fieldwork she will need to interview managers in key occupations involved in sustainable practices. Her questions will focus on investigating learning pathways for managers in key occupations relevant to sustainable development and how these are shaped and experienced. She will also focus on identifying systems and structural factors influencing articulation and access issues relevant to progress in their learning pathways.

Her research proposal has been submitted to the higher degrees committee and she has permission to conduct the research.

We appreciate your support of this initiative.

Kind regards,

PP Armstrong
Research Programme Administrator

Professor Heila Lotz-Sisitka
Murray and Roberts Chair of Environmental Education
Environmental Learning Research Centre
Education Department
Rhodes University, PO Box 94, Grahamstown, 6140, South Africa
+27 (0) 46 603 8390 (ph)
+27 (0) 86 515 2787 (fax)

environmental
LEARNING RESEARCH CENTRE

Environmental Learning
Research Centre
www.ru.ac.za/elrc

Education Department, Rhodes University
PO Box 94 Grahamstown South Africa 6140
Tel +27 46-603 8390 – Email elrc@ru.ac.za

APPENDIX C

TRANSCRIBED NOTES FOR WA1

08 September 2011

FOCUS GROUPS:

Group 1 – Toilet Cleaners

Q - How long have you been doing this job?

A1-We clean all public toilets including the city hall, we put toilet paper, we clean walls, scrub and polish the floor daily. When there are blockages in the toilets, we pump them out to clear the drain. I have been here forty years. After twenty five years of working as a driver I was moved here.

A2-There is five of us doing this job, I am the only woman in this group.

A3-Everyone has their dedicated area.

Q - Do you think your job is important?

A1-Yes it is important. But it is the chemicals that we work with which are hazardous to our health. We don't have gloves to protect us. What can we say, we are old , we are used to this job.

Q - Do you enjoy your job?

A1-Yes we do, we are used to it.

A2-We are fine where we are, we don't want to be moved to other sections.

A3-Yes I do enjoy my job because I feel we serve the people of Grahamstown. The people also appreciate the work we do for them.

A4-We enjoy being here. We don't want to be changed. It would be nice though if our bosses could at least come and visit the sites we work at when we say toilets are blocked, things like that.

Q - Do you think your job relates to the environment?

A1-Yes, cleaning public toilets and making sure they are clean is important for a healthy environment.

Q - Do you think you could be trained on something that could help you do your job better?

A1-No

A2-We are old now, almost pensioners, there is no need for training.

A3-With me, age is on my side, I am willing and interested to learn more. Maybe the chemicals we use could be changed. They are not user-friendly. We get given chemicals to use but never taught on how to use them. Sometimes we do get protective clothes but never told how to use them and what for.

A4-They have changed the bottles we used to have. There is now yellow bottles and white bottles.

Q - At what grade did you leave school?

A1-Std 8

A2-No school

A3-Std 1

A4-Std 4

We used to go to ABET classes but never completed. Because the classes are in the evenings transport and time was a challenge.

Transcribed Notes for S5-Supervisor for LED

07 February 2012

Q: How long have you been in your job?

A: Since 2009, beginning of August. It's about two years now and a few months.

Q: Do you think your job is important?

A: I think it is very important especially if it had sufficient budget actually.

Q: Why do you say it is important, in what way is it important?

A: To develop the emerging farmers as well as SMME's in general, basically. It is one of the pillars in terms of uplifting the standards of the people of South Africa generally. But in terms of Grahamstown, I would say it is important for uplifting the standard of living for the people of Grahamstown. It is through SMME that is job creation, unemployment, all that, eh... even reduction of crime. That also depends on how much poverty there is, how hungry people are. For instance you cannot just steal if you are not hungry.

Q: Are you enjoying what your job?

A: Hmmmm..... (with hesitation). I would say yes, but... it's just internal issues. But helping people is my passion. I came back from Pretoria because I felt like I'm not in contact with people. Let alone the internal issues like report... too much reporting. You know... I will first tell you about the monthly report, within one day two days, they tell you about the medium term report. Then the annual report as well as the items. You know within maybe you have to report on four levels, I don't know how do I put it but in four different structures, as well as the internal auditors they need their own thing. There is too much administration. Unfortunately there is no one who is filling that gap in terms of the technicalities as well as the managerial responsibilities. It's too much, otherwise it is an interesting job if we were not under staffed.

Q: Do you think your job relates to the environment.

A: Well... Yes!!!! especially if I can only focus in agriculture. Then I will be able to focus more on environmental issues because we talking about organic farming, that's how I relate to the environment. As well as the opportunities that are related to organic farming. Carbon farming which aims at reducing the carbon foot prints. There's a lot in it. It is a matter of who can come up with the best strategies and really implement. Because even myself I feel like I need a lot of capacitation at least monitoring the processes.

Q: Has the Municipality offered you any training related to the work that you do?

A: Oh Jaaaaaa.... I would say yes! I would just list two, which is LED course that I attended which aims at introducing me to... because I was from a government department, so I didn't have that much background in terms of Municipality, the systems Act. At least that's where I got the information even on this ehh...other reporting lines and so forth. The course is for one year but I didn't finish because I was busy with own studies, but there is only one module left. I still have to finish, the module is HR. The Municipality is paying for training and they will have to claim back immediately when I finish from the LG SETA, yes.

The other training, I wouldn't say its training as such but it is what we went to in Sweden and Tanzania for the SUS (Supporting Urban Sustainability) programme. That's where I got the link between local economy and environment, how can we explore those opportunities. The programme has helped a lot in terms of development and in my own life, that is understanding the real issues about the causes of the disasters and how can we prevent if we can some of the disasters. I mean how to be pro-active rather than re-active. Also educating the community at large, even where I am coming from it helps talking about these issues. People can really see the results of global warming.

I am allowed only one week per month to attend the one year course. So, that's basically how I was attending. You finish your assignments while there so that when you are back you just go back to your work. Also, I am also busy with my studies, that's what I didn't tell you. That's the reason I didn't finish that LED course. I am doing economic policy. So...as I said, that link....I'm linking it with the SUS programme. I did it before the SUS programme, I registered in 2009. It's a three course, hopefully I'll finish this year. I am funding myself. I didn't want to ask for funding from the Municipality because it has its own complications. Their funding has got own complications that you cannot leave after a certain period of time. So I didn't want that. If I were to pay to back the Municipality their monies for the one year course, I will. Let me be honest with you I am also applying where I can focus on Environmental Economy. That's where I want to be. If it means doing a diploma in

Environmental something will bring more light into what I want to achieve at the end of the day.

Q: If you were to be trained on anything else related to your job, what would that be?

A: I would say....ja!!!.... I have to finish what I am doing now. Also maybe things related to supply chain for my work purposes so that I can understand supply chain management. How to procure, I'm still lacking on that as well as the budget, financial management. Because in any case when you look at the municipality, the reasons of disclaimer and so forth that you read in Grocotts, I think it's all those smallanyana things that we are lacking as individuals as a municipality. So, if I can get that, whatever I am doing will be improved.

Q: What's your highest qualification?

A: I have honours in Agricultural Economics.

Q: What kinds of books or magazines do you read?

A: I don't want to lie. Normally I don't read books, most of the time I watch TV, those programmes like Noeleen and other programmes like shift and so forth. They've got their own way of inspiring people because you'll hear people saying that they have achieved whatever they have achieved out of nothing. So... every day when you watch those programmes you think I can do this, this was just an ordinary person, but they have managed. If they can manage, why not me. That is the question that I always ask myself. And every day I have my own target to say this is what I wanna do. I don't let my past affect my future. I always try to think positively. So basically that's that.

Transcribed Notes For M2

20 February 2012

14:00

Q: Where did you go to school?

A: I went to school in the Western Cape, Hottentots Holland, High school I matriculated in 1970 in a town called Somerset West.

Q: What subjects did you take?

A: Matriculation was Maths, Science, Biology and Geography.

Q: What did you do after school?

A: After I left high school I did army training because I was in the old South Africa. I joined then department of Forestry I studied at Sarsfield Forestry College, I didn't go to University, I did a national diploma in Forestry which I finished in 1974.

Q: What courses did you do when you were at college?

A: At forestry I think we did eighteen subjects. It was a National diploma in Forestry and I was many things. Many many different things all related to environment, forestry, commercial forestation, administration, formaling, conservation, it covered up a very wide field but eighteen subjects.

Q: How long was the course that you took?

A: It was a four year diploma of which two years were in college and two years were on practical on forestation, so we did first year practical under the supervision of the forest officers then you went to college for two years then you came back then write

a thesis under a specific project and then you got your national diploma. Look it was an excellent course. We taught to be jack of all trades because we did everything from, mechanics through to fixing telephones, everything because if you stay in a forest might quite remote so had to be able to fix buildings, do everything, it was a very wide range we did surveying, we did everything. We even did forest mation??? on timber volumes, how to read timber exploitation, it was very diverse, intense course but very interesting, very practical.

Q: What training programmes have you attended?

A: Well... after that I did two other National Diplomas. I studied at Cape Technikon I used to travel three times a week to Cape Technikon and I studied a National Diploma in Horticulture. I was working and studying at night. Then after completing I did another National Diploma in Parks & Recreation Administration which was directly sort of aimed at Municipalities, running cemeteries, gardens. I was working for City council. I finished that all in 1984 and then I worked for the city of Cape Twon as a senior Parks & Recreation officer, in charge of Nature Reserves and forest and then I came up to Grahamstown in 1988, I applied for a post here as Director of Parks & Recreation. So, I have never studied further, I have been on short courses here, lots of short courses, be they whatever that council had identified. I have a whole list of courses I have been on. I have been on computer training, I have done negotiation, I have done disciplinary courses, I have been on many different facets of training that apply to council's work. I have never done any additional diplomas or courses related to the environment because I have quite a lot of knowledge in Horticulture Forestry and Parks & Recreation Administration. Other training is in-house, management training.

Q: Who ran the courses?

A: They were outsourced, service providers and individuals came to run the courses. Some through Rhodes. Some internally but most externally. I 've got certificates and attendance registers for all the courses I 've done so that's available.

Q What sustainable Development practices are you involved in now?

A: *You know we are at the moment busy with conservancy. We are working on the whole Southern Commonage of the Municipality which is about two thousand hectares of land just the South of us. We are in the process of creating a conservancy that hmmm....is a joint venture between Local government and Provincial government, National parks and also private land owners, forming conservancy. Things of similar interest like fire fighting and control of alien vegetation, different types of farming practices will be done as a joint venture although we will retain our autonomy on our own land, it will be in conjunction with what the constitution says for conservancy. So, that's quite a sustainable thing itself. We are also busy trying to develop farming practices on the Eastern side of land with stock owners where we are trying to equip them with to eventually become farmers, emerging farmers. I am not involved in the other projects which are even on our land they are more like chicken farming, and piggeries. We are partially involved in it, but I am basically focusing on stock farming. And then we have other initiatives, we've got greening projects for Grahamstown whereby the township areas that we devoid of trees in the trees, and things like that. We are continuously doing something, we have service providers that are doing it with us. We would like to think it is a sustainable practice.*

We have a massive working for water project, in which we are a partner in, and the government is assisting us through this working for water project. All our land is water vegetation, thereby in their natural catchment in their old and obviously then get the sponges that ...rehabilitated. So Ja!!!! It's a big nature project. It's been here since 1998, so that's a huge, sustainable project.

Then there are other things I mean if you are talking about, we do assist with these small gardens within the township, developing. Our role is more logistical, in other words we will bring in manure and help the people clear the land. So, we assist in those kinds of projects. Other greening projects, we are developing parks in the communities, there are four big projects running at the moment, within one project, it's a ten million project where we are developing four parks, that also in a way is making the communities more sustainable.

Q: What skills do one need for these practices?

A: I think the training that we have, the background that we have is fine. What we do need is specifically project management training. That would be a plus for some of my managers, for instance the manager of Horticulture, the manager of commonages and the environment. It would be nice to send them on Project Management. We try to aim them in that direction. And also, dealing with that is Municipal Finance, they need to know how to have a certain qualification on finance, on budgeting and ... maintaining budgets and things like that those are the real needs. We 've got qualified people in their fields of work, be it Environmental, Horticulture or Sports & Recreation but I'd like to increase their capacity more so in finance and project management.

Q: Who was your mentor?

A: Here? Ehh... you know I've been... in Cape town I had my seniors in Forestry, Parks and Works were my mentor In Grahamstown I have worked more with people than having a specific mentor because I have been Head of Department here. I actually brought the expertise from where I was before because this department was run by a farmer before me and they decided there needed to be a professionally trained person in Parks and Administration and that kind of work, and also Forestry, that's why they employed me. But I belong to an Institute of Parks Environment & Recreation Management. I still belong to them, that fit professional body that assists us with our operations. So, I am a member I used to be the chair, chairperson of the Eastern Cape for eight years. If I can call it that that has been my main guiding body. I don't have a specific mentor. I have colleagues at Rhodes University who have similar qualifications to me and we assist each other a lot.

Q: The courses that you attended were they accredited?

A: Some accredited others not. I have attended many training courses in the last couple of years. Prior to that I Mean I went to things like establishing hiking

trails. It was a two or three day course, presented by then University of Pretoria, now Tshwane. There were specific things that I needed for my work situation here.

Q: What do you do in your job? (Job description).

A: My job title used to be Director, now Manager. It changed when the political structure changed in the council. And they appointed directors at higher level than us. Then we became assistant directors. Then he became... he is now the Director of Community & Social Services. And I then was the Director of Parks & Recreation which is one of the directorates within his directorate. So, but they chose now to call us Managers which is fine. But my portfolio as such is I will look after all Horticulture matters in this town whether that be greening, street trees, parks, whatever it is play grounds gardens. That's one thing, one thing we do is horticulture management and construction which is commonage, nature reserve and the new conservancy. So that's everything outside of this city set up or town set up. It can be common land nature reserve and the commonage. We manage that, and I have a specific manager for that, I have a specific manager for horticulture and I have a specific manager for Sports & Recreation which looks after all the sports grounds and programmes and things like that related to sports. But if you break it down in an essence we are responsible for mowing, cleaning, street trees, and which is mowing and street trees. Cemeteries, all the cemeteries that we look after. We have the commonage as I said, and then we also look after the hiking trails. We have a nursery here. We have a wide range of what we do. We also do animal control all the stray animals in town, and farm animals all taking place on the commonage on the common land. We also do weed control of weeds in the streets and wherever, so a lot of spraying is done by us too, its specialised work that. It's very much jack of all trades Department if you want to call it that. We look after a number of playgrounds. Under Sports and Recreation.

Q: Does the Municipality do workplace skills planning? Are sustainable issues included in skills training programmes?

A: Not recently. Because I am getting to the end of my career, I am starting to position people to take over from me. So what I am doing is I'm sending people for training. For instance there is a Financial Management course because I am gonna retire in a couple of years it's not wasted money, but I'd rather send a junior manager to go they can gain that expertise because I am sort of tapering off now. To position people into and train them in service, in house. Mostly environmental courses and that I am sending the relevant managers.

Q: Who goes for training?

A: Well.. we have a skills development section that deals with training as far as all official employees are concerned. Its not a functional section I must say. It is not operating the way it should be because we identify the courses we think people should go on. But there is funding available and I have just sent a lady on front desk, she deals with the public.

Q: Who pays for the training?

A: They centralised the budget, some of it is SETA accredited I think they get their money back. So, its not matter of identifying the courses for people to go on. I mean we are now going to be training guys now on, specialised tree climbing work, because they climb trees up to twenty metres thirty metres to bring trees down, it's a specialised work, people have to be.... have no fear of heights, specialised equipment to climb trees, and there need to be safety equipment, so we are continuously identifying things. Environmental things has courses and we think they are relevant then I will say to Phiwe this course will benefit you, not only now but in the future jobs.

I think you will find that if you have to interview other departments too, its coming out that we are not the only ones, but we will identify things but things don't be where they should be, and it revolves around individuals who

are not doing their work. It's rather said, and they should be taken to task. I don't think enough pressure is applied.

APPENDIX F

Analytic Memo 2: Workers' & Supervisors' - Learning pathway decisions and experiences related to sustainable development

Category	Subcategory	Source
Experiences of systems factors	Lack of Education/literacy Lack of interest in education Lack of training Family circumstances-from school-home-work Inefficiency of Municipal system	WA1, Doc-07, Doc-01, Doc-03 WA1,WA2 WA1-WA9, Doc-07 WA3,WA4 S2
Tensions	Retirement age Job importance Mismatch of skills/ knowledge & job description Lack of training/not provided	WA1 ,S4, Doc-01 WA1,WA3,WA4,WA5, Doc-03, S2 WA4,WA8,S1,S2, Doc-08 WA1,WA4
Access	Past unfair discrimination Low level of education Interest in education Study support & management support Working on sustainable	WA1-WA9,Doc-04, Doc-01,Doc-06 WA1-WA9,Doc-03,Doc-07, Doc-01 WA3 WA3,WA4,S2,S3, Doc-01, Doc-05, Doc-03 S1,S2,S3,S5

	project Past working experience	S1,S2,Doc-09 S1,S3
Quality	Social & economic factors	WA4,WA6,Doc-07, Doc-03,Doc-06
Quality	Lack of foundational competence Working conditions Lack of capacity Job satisfaction	WA1, Doc-07 WA1,WA2,WA3,WA4,S3,Doc-03, Observation notes WA1-WA9,Doc-07,Doc-03, Doc-01 WA2,WA4,WA7,S2
Mobility/progression	Casual/permanent worker High school to electrician Working for water to nursery Working with tanks to water & dept Length of service Learning from others Years of experience Self taught Occupationally & sustainable dev related Past experience unrelated to occupation Mismatch of title & job description	WA2,WA5, Doc-04 WA4 WA5 WA9 WA7, Doc-03 WA5,WA8,Doc-04 WA5,WA8,S4 S1,S4 S5,Doc-04,Doc-06 S1,S3, CV's, Job description S1

APPENDIX G

Sample of career stories (for M2)

Career Story 2 - (M2): *M2 is a white male manager for Environmental Management and Recreation. He went to school in the Western Cape and matriculated at Hottentots Holland High School in 1970 in a town called Somerset West. At this high school, he took subjects which included Maths, Science, Biology and Geography besides languages. After leaving school he did his army training because this was during the old South Africa and this was compulsory. He later joined the then Department of Forestry and studied at Sarsfield Forestry College. He went to College instead of University where he did a National Diploma in Forestry which he completed in 1974. At college he did eighteen subjects. He is quick to point out that the national diploma included a lot of things. All of them were related to the environment, namely, forestry, commercial forestation, administration, formaling, conservation, and covered up a very wide field. The National Diploma was four years in college and two years practical. As students they did first year practicals under the supervision of the forest officers then went to college for two years, then back to write a thesis under a specific project and then got the National Diploma qualification. He agrees it was an excellent course, intense but very interesting and practical.*

After the National Diploma, M2 proceeded to do two other National Diplomas. He studied National Diploma in Horticulture at the Cape Technikon. He used to travel three times a week to Cape Technikon, working and studying at night in order to complete his studies. After completing this Diploma he went to do a National Diploma in Parks and Recreation Administration which was directly aimed at Municipalities, running cemeteries and gardens. During that time he was working for the City council. Since working for Makana Municipality in 1988, he has never studied further. He has been on short courses, lots of short courses he indicates. Some of them accredited and others not. These were mainly identified by council. He says "I have been on computer training, I have done negotiation, I have done disciplinary courses, I have been on many different facets of training that apply to

council's work. I have never done any additional diplomas or courses related to the environment because I have quite a lot of knowledge in Horticulture, Forestry and Parks & Recreation Administration. Other training is in-house, management training". M2 says the courses he attended were outsourced, service providers and individuals came to run the courses. Some were from Rhodes, others internally but mostly externally. There are certificates and registers for all the courses he has done.

M2 says for programmes related to sustainable development practices, they are busy at the moment with conservancy. He explains " we are working on the whole Southern Commonage of the Municipality which is about two thousand hectares of land just the South of us. We are in the process of creating a conservancy uhh...it is a joint venture between local government and provincial government, national parks and also private land owners, forming conservancy. Things of similar interest like fire fighting and control of alien vegetation, different types of farming practices will be done as a joint venture although we will retain our autonomy on our land, it will be in conjunction with what the constitution says for conservancy. So,that's quite a sustainable thing itself. We are also involved busy trying to develop farming practices on the eastern side of land with stock owners where we are trying to equip them eventually to become farmers, emerging farmers". He continues to add that they have a massive "working for water" project, in which they are in partnership, and government is assisting through this project. This is a big nature project. Then there are other things and explains " I mean if you are talking about uhh...we do assist with these small gardens within the township, developing. Our role is more logistical, in other words we will bring in manure and help the people clear the land. So! we assist in those kinds of projects. Other greening projects, we are developing parks in the communities, there are four big projects running at the moment, within one project, it's a ten million project where we are developing four parks, that also in a way is making communities sustainable". He mentions that the training that he got and his background helps him with the necessary skills for these practices. What he sees as a missing element is Project Management training. That would be a plus for my managers he says, "we've got qualified people in their fields of work, be it Environmental, Horticulture or Sports & Recreation but I'd like to increase their capacity more so in Finance and Project Management". When asked who his mentor was, he mentions that when he was in Cape Town, his mentor was his

seniors in Forestry, Parks and Works. Otherwise what helped him most was that he belonged to an Institute of Parks Environment & Recreation Management. He adds "I Still belong to them, that fit professional body that assists us with our operations. So, I am a member, I used to be the chair, chairperson of the Eastern Cape for eight years. If I can call it that, that has been my main guiding body. I don't have a specific mentor. I have colleagues at Rhodes University who have similar qualifications to me and we assist each other a lot".

M2 says his job as Manager of Parks and Recreation is to look after all Horticulture matters in town whether be it greening, street trees, parks, whatever is playground and gardens. That's one thing, one thing we do is horticulture management and construction which is commonage, nature reserve and the new conservancy. So, that's everything outside of this city set up or town set up. He states "we manage that, and I have a specific manager for horticulture and I have a specific manager for Sports & Recreation which looks after all the sports grounds and programme and things like that related to sports. But if you break it down in essence we are responsible for mowing, cleaning, street trees, cemeteries, all cemeteries that we look after. We have the commonage as I said, and then we also look after the hiking trails. We have a nursery here. We have a wide range of what we do. We also do animal control, all stray animals in town, and farm animals, all taking place on the commonage on the common land. We also do weed control in the streets and wherever, so a lot of spraying is done by us too, its specialised work that. It's very much "Jack of all trades" Department if you want to call it that.

When asked whether the Municipality has a workplace skills plan he says not recently. He says there is a skills development section that deals with training as far as official employees are concerned. He states "it is not a functional section I must say. It is not operating the way it should be because we identify the courses we think people should go on. But there is funding available and I have just sent a lady on front desk, she deals with the public". The budget is centralised for training purposes. Some of it is SETA accredited and the Municipality gets their money back. He goes on to add that " I think you will find that if you have to interview other departments too, its coming out that we are not the only ones, but we will identify things but things don't be where they should be, and it revolves around individuals who are not doing

their work. It's rather sad, and they should be taken to task. I don't think enough pressure is applied", he concludes.

APPENDIX H

Sample of coded career stories (for M1)

DATA ANALYSIS

CAREER STORIES OF MANAGERS

Career Story 1-(M1) : M1 is a black male Environmental Manager at Makana Municipality. He went to school mainly in Grahamstown, started at Tanti Lower primary School, proceeded to N. V.Cewu primary School, followed by Ntsika Secondary School and finally Nathaniel Nyawuza High School. At school he did six subjects which included Xhosa, English, Afrikaans, Geography, History and Biology. After school he did a degree in B.A, majoring in Psychology and Geography. He went to Rhodes University in 1984 and completed in 1990. He then went to teach in Ciskei without a teaching qualification, and that made him decide to come back and do his HDE (Higher Diploma in Education). He enjoyed Rhodes University so much that he decided to immediately continue and study honours in Geography. After that he worked as a Mellon Foundation researcher at Rhodes University. In 2005 he then decided to study further for his Masters at UCT as a full time scholar, at the Institute of plant conservation, botany department qualifying with a Masters in Botany. Looking at his previous subjects, he says "it's not really Botany that one can imagine at undergraduate level because I am not from a Botany kind of background". He says he has attended a number of courses in his work. Some of which were accredited and others not. He laughs as he says " I hope all the things I did at Rhodes and UCT are accredited". He mentions that he also serves as an Environmental consultant with coastal and environmental services. He adds that he attended a course in Environmental Impact Assessment in 2000. When he was a teacher he was a member of Environmental Education Association of South Africa, and the added advantage was being part of the group that co-ordinated inclusion of environmental education into formal education school curriculum. Project Management is another course he remembers doing during the course of his work.

Then he remembers also “Ohhh!!! The other thing is Environmental Management at local Government which I did with SEDA in Stockholm, also in Zambia, Lusaka... that was in 2010”.

M1 has been involved in Sustainable development practices within the Municipality. He explains in depth “we as a Municipality are taking our cues from a document which was a result of an audit conducted by the Municipality in 2003/2004. This document is called Local Environmental Action Plan (LEAP). We are trying to implement some of the projects that were identified during that process. The process involved consultation with various stakeholders in Makana Municipality and nine major issues were identified. And in each of those issues, implementation plans were drawn and I could mention but some for instance waste management, I could mention the issues of commonage management, greening and energy and other projects. So, I am here to try and assist the Municipality to implement those projects. Some of them for instance bio-carbon farms, carbon sequestration project which involves restoration of our thicket in our area. Those were the issues, they are big and ambitious ehh... one of the major constraints is the question of funding. One other very important thing is the Environmental education and awareness programme which has a comprehensive strategy that was part of LEAP. We are implementing that programme”. He mentions further that Jaa!!! lately they (colleagues in the Municipality) are trying to lift the LEAP into a sort of higher gear by embarking on what they call a “green city strategy”. He says they want to encourage the Municipality and all stakeholders to invest in the green economic projects. He indicates that they would like to have a green strategy that talks to all the activities as a Municipality. He adds with pride that “last year (2011) already we did get a recognition from the province for being a green Municipality”. They got the green the green city award (the greenest municipality in the Cacadu district).

M1 mentions that his keen interest in Environmental Engineering has helped him with the skills for these practices. Although he is still busy with this postgraduate Diploma, it enables him to think practically. He is also quick to mention that they (Municipality) are fortunate to have partners like Rhodes University to work on sustainable practices, “so we have partners, lots of stakeholders not even exhaustive. They have the expertise, we don’t have those skills”. Shall I say for the purposes of this research to mention that we are also fortunate to have partners who

are geared to sustainable practices. He is also quick to mention that they (Municipality) are fortunate to have partners like Rhodes University to work on sustainable practices, *“so we have partners, lots of stakeholders not even exhaustive. They have the expertise, we don’t have those skills”*. Shall I say for the purpose of this research to mention that we are also fortunate to have partners who are geared to sustainable practices. He states that for all the work he has done at the Municipality, his mentor has been Lawrence Sisitka, an Environmental Management & Training consultant. He expresses deep gratitude as he says it. He states that they have worked on a lot of projects, and being able to seat down with him and look at practical things that have to do with the environment has been valuable.

M1’s job description as an environmental description is elaborate. He explains first that this is a new position in which he started in Nov 2008. It is a strategic position, in which he develops concepts. *“I am here to support all Municipality Departments, like Local Economic Development, I am their backroom office, he says. I also support in particular Environmental Health & Cleansing Services. All departments, everybody, I am operating there to assist these departments with elevating what they are doing to the public. That’s why we were given the award”, he says with pride. He states that he is fortunate that he has the LEAP document which outlines that these are the things I need to do and they are big.*

When asked what type of training the Municipality offers in order to help him do his job better he responds *“ok! well... I have been told recently that I need to do Financial Management for non Financial Managers. Maybe we are going to overcome our challenges. I embrace that thing, all managers, all people in my level all of us. They say we need to go to that course before 2013. If we don’t have it, we are told that SALGA (South African Local Government Association) is not going to renew our contracts”. The Municipality will pay the bill as it is imperative that the Municipality officials have Financial Management skills. There is a skills development officer within the Municipality, which M1 says he has been working with for the past year, facilitating workers environmental training. He says “now and again almost every year we ask people to fill in a form and to specify what our desire is in training and things like that”. When asked about his experience on training issues within the Municipality he expresses, “well...I have not been trained by the Municipality since I*

started here. For instance my Wits University Environmental Engineering postgraduate Diploma, I am paying R16 000 out of my pocket and they are not paying my flights and accommodation. Sometimes I stay there for two weeks. I am told they are saying to me they will pay me once I pass the course, even that they are going to pay just tuition and not flights and things like that". He states further that fellow workers are complaining about mismatch of skills enhancement or skills training where they (Municipality) would suggest that you go and do a course on hygiene when they are not interested in doing that. He adds, "that is a problem, people go to these things because the Municipality pays and come back and the skill is seating somewhere of no use to the Municipality. Now... I hope that what is going on is the municipality...the municipality is conducting organisational analysis by Price Water Cooper. They are going to find out who is seating where with which skills because now with what they have done already, they have discovered that there are people who are seating in wrong places, someone with HR qualifications will be something at Finance instead of Human Resources. Or someone is supposed to be in the engineering and technical services is busy... I hope that process will get into skills mismatch in the workplace. It is a problem. It also causes people (he sighs)...I think it affects productivity because you've got somebody who is doing something which is not of his interest.

APPENDIX I

Sample of member checking signatures

M1 has been involved in Sustainable development practices within the Municipality. He explains in depth "we as a Municipality are taking our cues from a document which was a result of an audit conducted by the Municipality in 2003/2004. This document is called Local Environmental Action Plan (LEAP). We are trying to implement some of the projects that were identified during that process. The process involved consultation with various stakeholders in Makana Municipality and nine major issues were identified. And in each of those issues, implementation plans were drawn and I could mention but some for instance waste management, I could mention the issues of commonage management, greening and energy and other projects. So, I am here to try and assist the Municipality to implement those projects. Some of them for instance bio-carbon farms, carbon sequestration project which involves restoration of our thicket in our area. Those were the issues, they are big and ambitious ehh... one of the major constraints is the question of funding. One other very important thing is the Environmental education and awareness programme which has a comprehensive strategy that was part of LEAP. We are implementing that programme". He mentions further that Jaa!!! lately they (colleagues in the Municipality) are trying to lift the LEAP into a sort of higher gear by embarking on what they call a "green city strategy". He says they want to encourage the Municipality and all stakeholders to invest in the green economic projects. He indicates that they would like to have a green strategy that talks to all the activities as a Municipality. He adds with pride that "last year (2011) already we did get a recognition from the province for being a green ~~city in the~~ Municipality".

M1 mentions that his keen interest in Environmental Engineering has helped him with the skills for these practices. Although he is still busy with this postgraduate Diploma, it enables him to think practically. He is also quick to mention that they (Municipality) are fortunate to have partners like Rhodes University to work on sustainable practices, "so we have partners, lots of stakeholders not even exhaustive. They have the expertise, we don't have those skills". Shall I say for the purposes of this research to mention that we are also fortunate to have partners who are geared to sustainable practices. He states that for all the work he has done at the Municipality his mentor has been Lawrence Sisitka. He expresses deep gratitude as he says it. He states that they have worked together on a lot of projects, and

 14/06/2012

APPENDIX J

CV of M3, Training program for S3, S5 and M1 and certificates for S3, S5 and M1



KeyWord/ID37

CURRICULUM VITAE

Contents:

1. Application Letter
2. Application Form
3. Curriculum Vitae
4. References
5. Qualifications
6. Certificates

CURRICULUM VITAE OF

1

CURRICULUM VITAE OF

14 Cotterill Street, Grahamstown, 6140. E-mail kqb@makana.gov.za

INTRODUCTION

I am a very driven person who loves competition and working in challenging environments. Being Head of the Parks and Recreation Department has really helped me realise my strengths and weaknesses, whilst at the same time allowing me to see how rewarding and challenging being in a leadership position is. I believe my strengths are the following:

- I am an Innovative and a quick thinker
- Creative and adaptable
- I am able to cope well under work pressure
- I have been taught what real patience and understanding are
- I have a deep passion for my staff, peers and their needs and enjoy my vocation
- I am interested in assisting and encouraging my peers and workers achieve their goals
- I believe in always furthering myself in taking on new challenges
- I have a wealth of knowledge insofar as Municipal Service Delivery Departments are concerned.
- I have been actively involved in a number of Environmental developmental projects for Makana Municipality.

BIOGRAPHICAL DETAILS

Name:	
Home Address:	14 Cotterill Street, Grahamstown. 6140
Telephone Number:	046-622-4035 Cellular: 0832679945
Email:	kqb@makana.gov.za
Date of Birth:	1951-08-25
Age:	55 years old
Identity Number:	5108255066082
Nationality:	South African
Languages:	English- Excellent Afrikaans- Excellent Xhosa - Basic

EDUCATION QUALIFICATIONS

Education:

1966 - 1970

High School: Matriculated 1970
 Hottentots Holland High
 Somerset West
 Cape Province

Subjects passed: English, Afrikaans, Mathematics, Geography, Science and
 Biology

Tertiary Education

Saasveld College for Foresters George, Cape Province

National Diploma in Forestry

1973 -1975

Subjects

Forest Botany	Silviculture 2
Forest Protection*	Forest Law
Building Construction	Forest Utilization
and Equipment*	Forest Exploitation
Silviculture 1	Plane Surveying
Forest Mensuration	Forest Management
Nursery Practice	Accounting Procedure
Administration 1	Administration 2

Cape Technikon Cape Town

National Diploma in Horticulture

1979 - 1981

Subjects

Horticulture 1, 2 and 3
 Recreation 1, 2 and 3
 Administration 1, 2 and 3
 Nursery Management
 Plant Morphology
 Plant Botany
 Plant Protection
 Ecology

Cape Technikon Cape Town

National Diploma in Parks and Recreation Management 1982 - 1984

Subjects

Landscape Planning 1, 2 and 3
Horticulture 1, 2 and 3
Soil and Pest Control
Town Planning
Ecology
Cemetery and Crematorium Administration
Parks Administration 1*, 2 and 3
Recreation 1, 2 and 3

Other Achievements

Foundation Member of the Foresters Association of South Africa
Fellow Member of the Institute of Park and Recreation Management (Africa)
Certificate in Negotiations
Certificate in the Essentials of Financial Management
Certificate in the Planning of National Hiking Trails
Certificate in Effective Management
Certificate in Administrative Law
Certificate in Report Writing
Certificate for Safety Representative
Certificate in Basic Administrative Law
Certificates indicating Computer Literacy
Certification in Disciplinary Hearings

Leadership Positions held

Chairperson of the Eastern Cape Branch of the Institute of Environment and
Recreation Management 1998 – 2006
Member of the National Executive for the Institute of Environment and

Recreation Management	1998 – 2006
Cell Group Leader for Biblical Studies	2000 - 2006

PERSONAL PROFILE

I was born into a family of Seven Boys, which attributes to my relaxed and confident social skills, and ability to mix freely and be a dependable leader and team member

I believe that I have high energy levels, and it is that which allows me to set a good example to my peers as well as my subordinates.

I am known to lead from the front and not be afraid to get my hands dirty if that is what is needed to achieve a corporate goal

I believe in a balanced life style where the combination of Physical, mental and spiritual well being is a prerequisite to successful living

Coming from a Forestry background where Forest Officers were taught to manage remote Forest Stations on their own and therefore were multi-skilled, had to be disciplined and of a work ethic that required being on duty for extended periods, I believe that this experience will stand me in good stead for a Senior Managerial Position

I am dedicated and loyal, and always believe in following through everything that I undertake. I am motivated, and am at an exciting stage in my life where having served in a Senior Position since 1988 with Makana Municipality, I need a new challenge, and am confident that Heading up the Community & Social Services Directorate would be well within my capability, and in these the twilight years of my career enable me to offer my best to this Local Authority.

WORK EXPERIENCE

1975 - 1977

I was employed as a Forester stationed at Highlands State Forest in the Groenland District in the Cape Province.

My responsibilities included

- Fire Protection
- Silviculture
- Mountain Catchment Management
- Forest Exploitation
- Administration
- Nursery Practise
- Alien Vegetation Control

1978 - 1984

Resigned from the Department of Forestry to take up a position of Parks and Recreation Officer with the then Cape Town City Council and was stationed at Steenbras Forest Station 60 kilometres from Cape Town.

My responsibilities included

- Fire Protection
- Silviculture
- Mountain Catchment Management
- Forest Exploitation
- Administration
- Nursery Practise
- Alien Vegetation Control
- Management of the Kogel Bay Coastal Resort
- Management of the Gardens of the Steenbras Hydro Electric Scheme

It was in this period that I received two merit awards for service in the City of Cape town (attached certificates depict the detail therein)

Major achievements included

- Part to the National Award for Engineering Project of the Year - Steenbras Hydro Electric Plant
- Compilation of a 10 year Forest Exploitation Plan
- Compilation of a Fire Protection Plan for Steenbras Forest Station

1984 - 1985

Transferred into the South Peninsular district to obtain further experience in Horticulture and responsibilities included

- Sport and Playground management
- Cemetery Management
- Construction and maintenance of horticultural layouts
- Street tree maintenance
- Wetland management - Zandvlei Reserve
- Alien Vegetation Control
- Nursery management
- Fire Protection duties for Table Mountain Nature Reserve

Noteworthy achievement included the redesign and construction of the Muizenberg Gardens.

1986 – 1987

Promoted to Senior Parks and Forest officer in the Forestry and Nature Reserves division of the Department with the following responsibilities:

1. Overall management of 6 stations including
 - Kloofnek Forest Station
 - Steenbras Forest Station
 - Newlands Forest Station
 - Wemmershoek Forest Station
 - Silvermine Nature Reserve
 - Orange Kloof nature Reserve
2. Chief Fire Protection Officer in Charge Of all Bush Fire Fighting operations for Table Mountain Nature Reserve and out stations

Noteworthy achievement included

The preparation of an all-inclusive Fire Fighting Manual for Bush/ Forest Fires to be used by Cape Town City Council.

1988 – 2007 (present)

Resigned from the Cape Town City Council and took up position as Director: Parks and Recreation Department in the then Grahamstown Municipality reporting directly to the Town Clerk. This scenario was to change in the dawning of a new democracy and the responsibilities of the post were to increase with the formation of a new municipality incorporating a larger region

Areas of Responsibility include

Parks and Gardens
 Nursery Practise
 Street Trees
 Street Island & Verges
 Sport & Recreation
 Playgrounds
 National Hiking Trail
 Commonage; Farms & Nature Reserves
 Cemeteries
 Weed Control
 Fire Protection
 Botanical Gardens
 Caravan Park
 Aerodrome
 CURRICI

Municipal Pound
Dog and Stray Animal Control

Noteworthy achievements include

1. The establishment of a Professional Parks and Recreation Department
2. National Arbor Award in 1994
3. Design and Construction of the National Oldenburgia Hiking Trail in 1998
4. Chairperson of the Eastern Cape Branch of the Institute of Environment and Recreation Management 1998 – 2006
5. Member of the National Executive for the Institute of Environment and Recreation Management 1998 – 2006
6. Party to various other awards attained by the Municipality for Service Delivery Projects since the imposition of a new democracy
7. Serve on numerous committees to do with environmental matters including
 - Makana Environmental Forum
 - Botanical Gardens Advisory Committee
 - Caravan Park Steering Committee
 - Albany Working for Water Project
 - Millennium Tree planting Project
 - Eastern Cape Branch (IERM)
 - Kowie Catchment Campaign
 - Makana Stockowners Association
 - Millennium Tree Planting Project
8. Serve on a Panel Of Presiding Officers for Disciplinary Hearings





environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA



Certificate of Attendance

Awarded to

Landfill Management and Operation Training

Premier Hotel East London

21 Nov – 25 Nov 2011

Ms Ndwazi Cobbinah
Chief Director: Pollution and Waste Management
Department of Environmental Affairs

Mr Sipho Makhasana
Managing Director
Khabokedi Waste Management



environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA



LANDFILL OPERATOR TRAINING PROGRAMME

PREMIER HOTEL EAST LONDON 21 NOVEMBER – 25 NOVEMBER 2011

TRAINING DAY	MODULE	ACTIVITY	TIME	RESPONSIBILITY
1		INTRODUCTION & BACKGROUND	08:30 – 09:00	CHIEF DIRECTOR ENVIRONMENTAL AFFAIRS
	OVERVIEW	PRESENTATION	09:00 – 09:30	MXOLISI DUBE KHABOKEDI WASTE
	INTRODUCTION	PRESENTATION	09:30 – 10:30	SIPHO MAKHASANA KHABOKEDI WASTE
		TEA BREAK	10:30 – 11:00	ALL
	LEGAL AND POLICY FRAMEWORK	PRESENTATION	11:00 – 11:30	MXOLISI DUBE KHABOKEDI WASTE
	WASTE CLASSIFICATION	PRESENTATION	11:30 – 13:00	SIPHO MAKHASANA KHABOKEDI WASTE
		LUNCH	13:00 – 13:45	ALL
	WATER BALANCE & LANDFILL CLASSIFICATION	PRESENTATION	13:45 – 15:00	SIPHO MAKHASANA KHABOKEDI WASTE
		TEA BREAK	15:00 – 15:30	ALL
		DISCUSSION	15:30 – 16:30	ALL
		CLOSURE	16:30	ALL



environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA



TRAINING DAY	MODULE	ACTIVITY	TIME	RESPONSIBILITY
2	LANDFILL OPERATIONS & REQUIREMENTS	PRESENTATION	08:30 – 10:30	SIPHO MAKHASANA KHABOKEDI WASTE
		TEA BREAK	10:30 – 11:00	ALL
	FACILITIES & RESOURCES	PRESENTATION	11:00 – 13:00	SIPHO MAKHASANA KHABOKEDI WASTE
		LUNCH	13:00 – 13:45	ALL
	LANDFILL OPERATIONS & MANAGEMENT	PRESENTATION	13:45 – 15:00	SIPHO MAKHASANA KHABOKEDI WASTE
		TEA BREAK	15:00 – 15:30	ALL
		DISCUSSION	15:30 – 16:30	ALL
		CLOSURE	16:30	ALL



CERTIFICATE

It is hereby certified that

has participated in the first phase of the International Training Programme:

Local Environmental Management in Urban Areas

The modules below were presented during May 24 – June 11, in Sweden:

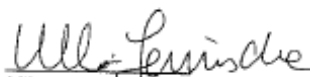
- **Module 1 – The Global Perspective**
- **Module 2 – The Swedish Model**
- **Module 3 – Elements of Institutional Development**
- **Module 4 – Governance Tools**
- **Module 5 – Local Public Environmental Management in Practice**
- **Module 6 – Role of intermediate level: vertical and horizontal integration and coordination**
- **Module 7 – Project for change, including project management methods and tools**

The last phase of the programme - the Regional Follow-up of the Programme, will take place during two weeks in November 2010, in one of the participating countries.

Stockholm, June 2010



Tim Greenhow
Programme manager
Sipu international



Ulla Jennische
Programme officer
Sweco



ADVANCED INTERNATIONAL TRAINING PROGRAMME 2010

272

Local Environmental Management in Urban Areas

Sweden, Stockholm May 24 – June 11, 2010

and Regional Course November 15–26, 2010

THE PROGRAMME MODULES

The programme is divided into 7 modules, the modules do not necessarily follow in a certain order and they may be spread out over several days. Most are closely inter-related so it is not always straightforward to separate them. Some of them are addressed only in Sweden, others will appear in both the Swedish and regional workshop phases (phases 2 and 4).

We practice an interactive pedagogy which means we welcome you to take an active part in the lectures, with comments, questions or comparisons with your own situation. Indeed, one of the most valuable aspects of this programme is the opportunity it provides participants to exchange their own knowledge and experience, and to create new awareness and understanding. It will be easier to take an active part in the lectures if you come prepared, a good way to prepare for our programme is to discuss with your colleagues and study the conditions, laws and requirements in your municipality relevant to the module.

Here is a short presentation of the 7 modules:

MODULE 1: The Global Overview

The module aims to create an understanding:

- Of global trends and emerging issues that are affecting and/or will affect local environments and their management;
- Of what public environmental management can mean for other sectors;
- Of the relationships between poverty, access to natural resources, gender differences, justice, and environmental issues and how they may affect the priorities in the participants' own work;
- For different legal, enforcement and guidance instruments and their relevance to sustainable development;
- Of the importance of communicating the purposes, contents, and implications of these instruments for the local development of relevant decision-making, interest, and lobby groups;
- For the importance of local decision-making processes and how they relate to international and national regulatory frameworks; and
- Of factors of success in the work for sustainable development in the home organisation and of how to use these to initiate and implement activities.

MODULE 2: The Swedish Model

The module provides:

- Knowledge of what public environmental management can entail in an advanced economy;
- A historical overview of environmental management development through time, that can give an overall understanding of the preconditions for change management work.

The module may inspire you to:

- Act for change and stimulate ideas for the development of local frameworks and laws supporting sustainable development.



Local Environment Management in Urban Areas
Advanced International Training Programme 272
2010 Africa



- Analyze factors of success in the work for sustainable development in your home organisation and to use these to initiate and implement activities leading to ditto.

MODULE 3: Elements of Institutional Development

This module aims at providing participants with the skills to:

- Act for change and the development of local institutional frameworks and laws supporting sustainable development.
- Assess the preconditions – institutionally, politically, financially, for change management work
- Understand and be able to communicate the purposes, contents, and implications of various legal instruments for the local institutional development of relevant decision-making interest and lobby groups.
- Be able to create effective and results-oriented dialogues between local and regional partners (private sector, NGOs, public administration) in order to change and improve the urban environment.

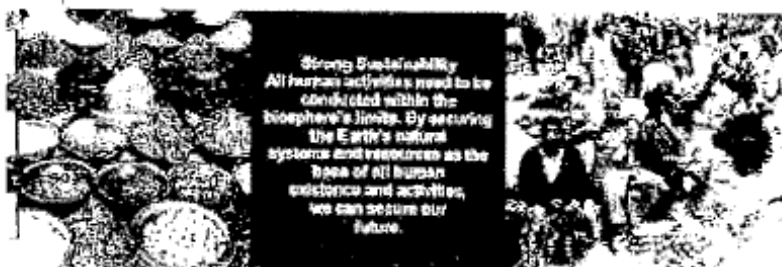
MODULE 4: Governance Tools

Module aims at providing participants with:

- The skills to analyze the extent to which the institutional framework provides sufficient material for priorities to be made, and tasks and responsibilities within the participants' own organisations to be delimited and defined.
- Knowledge of a variety of tools and instruments that can be used to manage today's urban environment and shape tomorrow's;
- An understanding of the importance of local decision-making processes and their relation to international and national regulatory frameworks;
- Knowledge of what public environmental management can influence e.g. its role within the general orientation towards sustainable development, how its different inherent aspects relate to each other

MODULE 5: Local Public Environmental Management in practice

The module will give a better understanding of how the theory and intentions of good environmental management instruments can be interpreted and applied practically in the pursuit of good governance and improved living environments. It will demonstrate the application of public private partnership (e.g. planning by negotiation) in the pursuit of meeting both private sector economic goals, and public sector environmental quality goals, through adaptive administrative systems. This will include examples from the Swedish model, but also tools that can be applied in most situations.



Certificate

This is to certify that

as a member of the

Grahamstown/Makana City Team

has successfully completed the

Supporting Urban Sustainability Programme

Collaborative training for ecosystem services governance in the context of poverty alleviation

April – December 2011

Franz Lengies
Director SWEDES

h
Gordon University
Higher Education

www.sweedesd.co


SWEDES



SWEDES

2011-09-14

SUPPORTING URBAN SUSTAINABILITY (SUS)

The ground-breaking SUS-programme brings together urban stakeholders from Africa, Asia and Europe to collaborate and learn for strong urban sustainability. With the support of action-based pedagogy stakeholder groups engage in concerted action to alleviate poverty.



More than half of the world's population lives in cities and over 90 percent of urbanization is taking place in the developing world. The SUS-program is structured around the view that meeting the challenges of rapid urbanization requires a significant shift towards more adaptive and reflexive forms of urban planning and governance, underpinned by processes of collaborative learning.

INQUIRY-BASED APPROACH

The participants in the SUS-programme are leaders and decision makers from the public and private sector as well as from civil society. To enable participants' learning in a practical as well as a conceptual way, each city is being encouraged to develop a *strategic inquiry*. This strategic inquiry forms the focus of the learning and action throughout the programme. It addresses a set of issues that are of shared concern and priority to each city team. Thus the SUS-programme seeks to support action-based contextualized learning leading towards urban sustainability.

The SUS-programme aims to further the understanding of ecosystem services approaches to poverty alleviation in urban settings (ESPA) and to support ESPA-schemes in selected cities in Africa, Asia and Europe.

The first edition of the SUS-programme started in early 2011 and brings together the cities of Ahmedabad, Anusha, Bloomfontein, Dhaka, Grahamstown and Malmö.

"I liked the fact that the facilitators were not imposing their ideas on us but allowed us space to work on our own and [to] be able to answer and solve our problems in relation to our work."
(SUS participant)

EARLY OUTCOMES AND EXPECTED RESULTS

The inquiries of the six pioneering city teams are in the early stages of development. All of the teams have identified a joint issue of common concern.

- Ahmedabad is investigating how the living conditions in slums close to lakes can be improved while securing water quality.
- Dhaka seeks to stop the falling of the ground water table in the city.
- Arusha focuses on implementing genuine participation in the city's master plans.
- Bloemfontein is seeking to combine greening and recycling efforts with poverty alleviation by offering employment in a clean city campaign.
- Grahamstown aims at alleviating poverty through organic food production, providing livelihood and incomes.
- Malmö wants to establish active collaboration between rural and urban stakeholders in creating employment and restoring urban ecosystems.

Currently the cities are consolidating their partnerships and are about to launch appraisal processes through which they seek to widen the network of stakeholders.

The activities in the SUS-programme are intended to contribute to capacity development, with the ultimate aim of improving conditions for people living in poverty.

The SUS-programme focuses on developing a shared approach to poverty alleviation (ESPA) in urban areas. ESPA aims to develop poverty-reducing measures, recognising the interdependence between humans and nature and focusing on the potential to bring benefits to the poor by improving ecosystem functions.

The SUS-programme is offered by SWEDESD, in close cooperation with the Centre for Environment Education (CEE) based in India, the Southern African Development Community's Regional Environmental Education Programme (SABG-REEP), the Stockholm Resilience Centre (SRC), the Swedish International Centre for Local Democracy (ICLD), Global Action Plan International (GAP Int'l) and the Worldwide Fund for Nature (WWF).

Participant's voices:

"The most important learning outcome was how to work together as a team."

"The programme was great. We really learnt a lot theoretically and practically."

FURTHER INFORMATION

Please refer to www.swedesd.se and www.susprogramme.wikispaces.com to learn more about the SUS-programme.

APPENDIX K

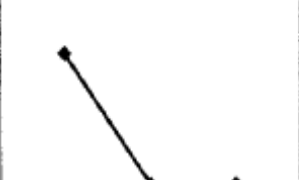
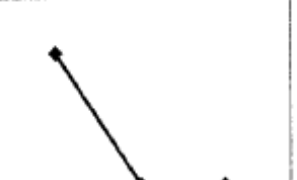
NQF sub-systems and learning pathway graphics

South African Education Levels				
Band	School Grade	NQF Level	Qualifications	Weighting
Higher		8	Doctors degrees	46
			Master degrees	44
			Honours degrees	42
			Postgraduate diploma	40
		6	General first degree	38
			Professional 1st degree post graduate	36
			Bachelor's degree	34
			First diploma	32
		5	Higher certificate	30
			Certificate	28
Further	12	4	Diploma	26
	11	3	Certificate	24
	10	2	Certificate	22
General	9	1	Grade 9 Adult Basic Education and Training Level 4	20
	8			18
	7			16
	6			14
	5			12
	4			10
	3			8
	2			6
	1			4
	R			2

Umalusi	CHE	QCTO	Umalusi	CHE	QCTO	Umalusi	CHE	QCTO
26	32	28	26	32	24	26	36	0

Manager 4  Umalusi CHE QCTO	Manager 5  Umalusi CHE QCTO	Supervisor 1  Umalusi CHE QCTO
---	---	---

Umalusi	CHE	QCTO	Umalusi	CHE	QCTO	Umalusi	CHE	QCTO
26	0	0	24	0	0	8	0	0

Worker 4  Umalusi CHE QCTO	Worker 5  Umalusi CHE QCTO	Worker 6  Umalusi CHE QCTO
---	---	--