

## **CHAPTER 5**

### **5. RESEARCH ANALYSIS AND DISCUSSION**

The state of Environmental Education in Gauteng, particularly how it is coordinated and implemented across government departments and districts, is presented below. The findings are a combination of the literature reviewed earlier in this research and analysis of school based interviews.

#### **5.1. The National Environmental Education Policy**

South Africa is a relatively new democracy, and consequently many of its new policies are in a state of being reshaped (NEEP, 1999). The NEEP is no different. The NEEP project was a response to, and offers support for, new educational policies within the framework context of the South African Environmental Policy (NEEP, 1999). Its chief aim was to facilitate a shift in mindset and values in education. According to Manster (1998: 15) the prevalent mindset in the apartheid education system was one of authority, of a one-way communication canonising teachers and education researchers as policy experts. The development objective of the NEEP was to move away from this thinking, and to enhance the capacity in educators and researchers to enable them to implement learning at school level (Pandor, 2005).

The NEEP Project has shown practitioners and educationists the way in which environmental education should and could be implemented in the country (Cluster Workshop Group, 2004). It was up to the Area Districts and schools to make this a reality. In order to develop and promote the vision of NEEP there was a dire need to share examples of good curriculum initiatives, materials, ideas, and processes with as many people as possible so that these may get written down into document policies and that new areas for projects may be established in schools (Department of Education NEEP Review Committee, 2001). In this regard, many environmental education

practitioners and educators felt that all the areas of learning could be extended and enhanced significantly by the principles, processes and concepts central to environmental education (Stevenson, 2000). This can be true to some extent, however, unless educators pro-actively respond to these opportunities, and be key players in policy design and implementation, and curriculum development, these documents might fail to make impact in schools (Read Right, 2005)

Looking at NEEP from a critical perspective, Ranjeen (2003:40) argues that the environmental education policy process currently occurring in South Africa is largely excluding grassroots teachers and reflects the knowledge of ecological scientists. This can be true to some extent. According to the Area District Official (2005) “presently the NEEP is pioneered and run by the National Education Department”. As the fieldwork findings showed (2005), Area District officials and teachers are not part of the NEEP policy planning processes. In cases where teachers were involved in environmental education discussions, “the Spiral discussion model used in meetings failed their efforts as it was not progressive”. The spiral model was intended to introduce teachers to new curriculum initiatives including environmental education. It was selected as opposed to the top down cascade model. The other issue, according to teachers and District officials, is that the new cluster model is “good but, time consuming and circular”. So, on the whole there are no structured effective strategies that encourage teachers to be involved in environmental education policy debates (Ranjeen, 2003). It is disappointing to realize that minimal participation of teachers in environmental education policies is taking place despite the fact that curriculum policy research throughout the world has shown the vital importance of building the professional capacity and involving teachers centrally as key agents in both the design and the implementation of the curriculum (le Grange and Reddy, 1997). le Roux (2001:311) further states that environmental education policies are best understood in terms of practices on the ground by people who are affected, investigated or studied. Interviewed educators in Soweto complained that they were never involved in many environmental policy projects and initiatives organized by the Gauteng Department of Education.

It was also evident from the research findings that teachers and Area District facilitators are not consulted widely in matters of the NEEP policy implementation and curriculum development. As a result the introduction of the national environmental education policy in schools is not well accepted by educators. In schools around Soweto environmental education has received wide rejection. Six out of the eight interviewed schools do not want environmental education to be part of their schools` core curriculum. Teachers were not ready to encourage learners to do projects that are related to environmental education. Both teachers and principals seem to be affected by the “fear factor”(the fear that environmental education, just like OBE will be difficult to understand). Five out of eight interviewed schools, complain that they had enough with OBE and its teaching methodology, and do not want to trouble their mind again with environmental education policy initiatives. Generally educators are not ready to accept and embrace the introduction of environmental education in schools.

## **5.2. SYSTEMIC DYSFUNCTION AT GAUTENG PROVINCIAL AND DISTRICT EDUCATION OFFICES**

### **5.2.1. At the Provincial Level**

While there has been a steady demand for environmental education practitioners to pioneer environmental programmes, particularly in the light of Curriculum 2005`s emphasis on environmental education, many provincial education departments in the country have been reluctant, perhaps unable, to run professional development programmes to support teachers with environmental education (Lotz-Sisitka, 2002). The task has been left, to a large extent, to donor –supported projects like Rhodes University, Gold field South Africa and Delta (Delta, 1999). The interviewed education (the natural science coordinator) official argued that the Gauteng Department of Education does not have resources to undertake and run environmental education projects in schools. She further clarified that there are no environmental education specialists and experts for the Department of Education.

The fieldwork findings (from schools, Area District and the Department of Education) also show that the Department of Education for Gauteng is very silent on issues of environmental education policy implementations and development, and on curriculum initiatives. According to the interviewee at the Department of Education “there is no office coordinating environmental education and making sure that projects and activities are reaching schools, particularly those in disadvantaged communities. The office that exists, that is claimed to be liaising with the Department’s Districts in terms of promoting environmental education in schools, belongs to the Natural Science Coordinator for the Department”. The Department officials, 90% of them in the Education Policy and Research do not have much information about NEEP-GET. It seems that the only information that they have is from the national Department of Education head office in Pretoria “Since the coordinator left her position in 2002, there were no environmental education policy plans for the department”, natural science coordinator. Furthermore, there is no coordinating team for environmental education in the province to guide teachers on how environmental education can be implemented and run in schools. Much information is relied on districts facilitators who are working with other departments (Department of Environmental Affairs and Tourism, and the Department of Agriculture, Conservation, Environment and Land Affairs).

The NEEP-GET project is also superficially understood by Area District officials. Some describe NEEP –GET as a national policy (a fully-fledged one) and others as a school policy (the status for NEEP-GET is equated to that of an ideal School Policy Pack). This implies that District officials are also not fully equipped to facilitate environmental education projects in schools. They are also not sure of what the NEEP-GET project is all about. It should be noted that their poor understanding of the NEEP-GET project stems from the fact that, it can be said, there was no coordinating officer between the Gauteng Department of Education and the national Department of Education who advises on environmental education policy and implementations (natural science curriculum specialist, 2005). All that is happening now are *ad hoc* committees, which respond only to rising environmental issues in schools.

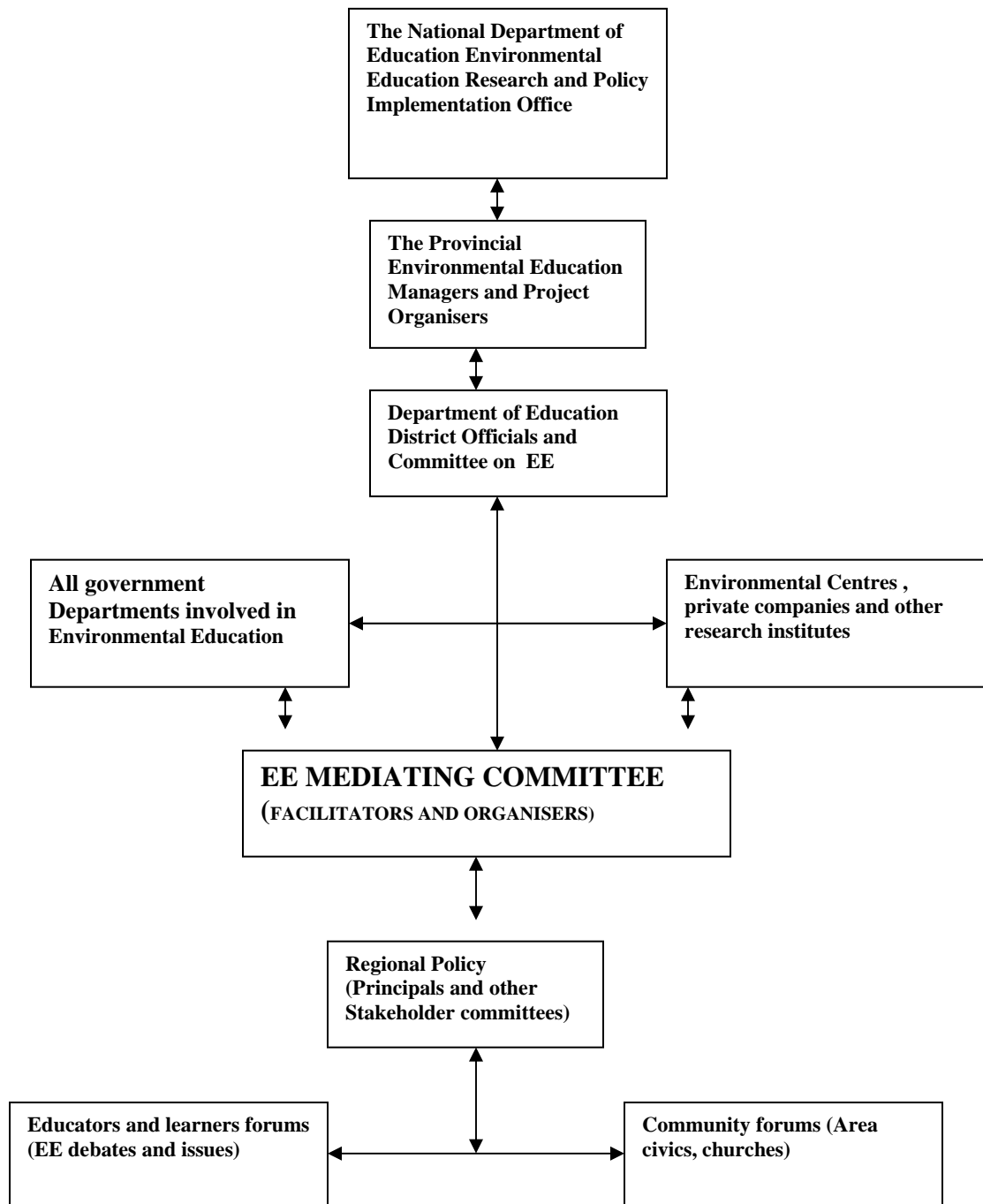
It was further evident that environmental education is not implemented in schools. According to the natural science coordinator at the Department of Education, only eight (8) high schools are visited by District officials per term. This means that thirty –two (32) high schools are visited per year. It should be noted that 32 high schools forms only 1% of all the schools that there are in Gauteng. The rest of the 99% are not involved in the departmental environmental education programmes. From these statistics it can be claimed that the Department of Education officials are not coordinating environmental education in schools.

### 5.2.2. At the District Level

It has become clear from the fieldwork findings that there is poor coordination between the Department of Education and its Districts on matters related to environmental education. To be particular, there are no learning support materials or learning strategy frameworks that are planned for the Districts by the Department of Education. In fact there are no planned work projects and action plans for schools for the whole academic year for 2005 (Area District official, 2005). It is not yet very clear in this regard how District officials encourage the development of environmental education in schools. According to the curriculum specialist (2005) the District uses the materials that are designed and implemented by various government departments. So these district facilitators are passive recipients of the knowledge, skills, insights that come from these departments (Ranjeen, 2003).

The discussion so far in this research points to the fact that environmental education is poorly coordinated at the Gauteng Department of Education`s national and provincial level. As a result environmental education policy initiatives and projects are unable to reach schools. Below is the schematic representation displaying some structural gaps in the coordination of environmental education in Gauteng.

**Fig 5.2.2. Structural gaps in the implementation of environmental education policy projects and programmes in the Gauteng region**



Adopted from Framework for the production of School EE Policy (SEEP, 1997)

### **5.2.3. Environmental Education School Policy Pack**

A School Environmental Education Policy can provide a framework for schools to get organised (EECI School Policy, 2003). According to the Delta Environmental Education Policy Pack (1999:23) developing an environmental education policy can be a means of organising the many fragmented environmental education activities in a school as well as organizing better management of school's resources. In South Africa the EECI 's Environmental Policy Pack, a resource developed in 1997, to support schools in developing environmental policies and management plans, continues to be used widely (EECI, 2000). So far the policy has made an impact in schools in, and around Gauteng (Enviro Teach, 2000). Given its impact so far, the School Environmental Policy is worth adopting at a national level (EECI, 2000). This could ensure project implementations in all the provinces.

The Delta Environmental Centre continues to make undivided efforts in designing and making these policy packs accessible to schools (Delta, 2000). Some of these resources developed include guideline booklets on how to develop an environmental education school policy pack related to particular environmental theme relevant to a school. These resources are revised from time to time. For example the latest environmental education school policy pack has colour story booklets of photographs and examples of policies developed in schools (EECI, 2000). This addition is useful for giving teachers ideas on how environmental education projects can be managed in schools.

One needs to look at the manner in which these projects reach schools. According to the interviewed Delta official (2005), educators are invited to attend a workshop facilitated by environmental education officers. The participants are given the School Environmental Education packs and other environmental education materials (EECI School Policy Pack, 2003). After the workshop participants return to their schools and discuss the implementation of the project with principals, management, governing bodies, learners and educators. The school then establishes a team, which is responsible for the implementation of the school environmental policy. Once a team has been established the

school goes through a process, guided by the policy pack, of developing its own environmental policy and conducting preliminary environmental audits. The school then identifies an environmental issue that is relevant to its context and develops a policy around it. The issue becomes a focus for the development of issue-based learning programme (Delta, 2000).

All schools interviewed do not have detailed environmental education Policy Packs. Delta has been working with only selected schools, particularly those from former model “C”. As a result schools in poor communities, in Soweto in particular, have not been visited. Second, information dissemination from the Department of Education to schools has been poor. Six out of the eight interviewed schools in Soweto say that they do not know of the link that exists between Delta and the Department of Education. Last, teachers themselves have not been empowered and mobilized to initiate and design school based environmental projects. They have little knowledge on the role of Delta in schools and in the Gauteng Province. The research findings discussed already show that proposed environmental education plans and initiatives from the Gauteng Department of Education and Delta Environmental Centre have never reached the majority of schools in Soweto.

Furthermore, in five out of the eight interviewed schools, environmental education School Policy Pack is still confused with the School Health Maintenance Policy. “The health maintenance policy is the school policy document designed to deal with the whole school environmental maintenance”, the principal. Of course these activities form part of environmental education, but cannot be regarded as issues of a school environmental education policy, as they are health -related only. According to the analysis from the observations made in the eight schools in Soweto, the maintenance policy is silent about changing learners` attitudes towards the environment or developing skills and knowledge so as to channel them to be responsible citizens.



#### 5.2.4. Poor link between environmental institutions and schools

##### a) **Psychological footprint**

In South Africa institutions from various organisations played a constructive role in the promotion of environmental education in schools (Robottom, 1987). In the 1970s the Wildlife Association of South Africa used to design environmental learning material on its quarterly booklet called “Wilderness Series” (WASA, 1972). The Department of Environmental Affairs in the 1980s used to produce a series of Environmental Education school- based projects through its journal called the “Conserva” (The Department of Environmental Affairs and Development, 1983). In 1987 the Natal Parks Board distributed its environmental education booklets to schools in South Africa (NPB, 1989). Its publication was called “Environmental Review”. In 1988 the Shell Education Service published the booklet called The Environmental Education Shell Catalogue Series (Shell Education Service, 1990). In 1991 the Fieldwork Project, called “The Educator” (Department of Tourism and Development) was published by the Department of Environment and Development (Pretoria) (The Educator, 1991).

From the early to the late 1970s institutions and organisations that were shouldered with the responsibility of initiating and promoting environmental education defined it in a narrow way. It should be reiterated that between these years environmental education was understood to be the study of ecology. Projects and initiatives related to environmental education were, in most cases, run and organised by wilderness institutions and gameparks. Not much contribution in terms of promoting environmental education have these institutions made in schools and communities. The focus was on teaching communities and learners **about** the environment. Even today this psychological footprint can still be detected in schools. In all schools interviewed, fieldwork excursions, ecosystem mapping, gardening and environmental health were understood to be key facets of environmental education.

## **b) The shift in environmental perspective**

Between the late 1990s and towards the 22<sup>nd</sup> century one witnesses the proliferation of various environmental education projects and initiatives in schools. They are coming from both the government and private sectors. This proliferation has been sparked off by the shift in understanding of environmental education. From the 1990s environmental education has been understood to be interwoven with issues of poverty alleviation, environmental degradation, sustainability education and community empowerment. The approach to understanding these issues is being critical about them and seeking ways at school level, in communities, and at national level, to deal with them.

There are organizations and government departments which have, in line with the new understanding of environmental education, made significant impact in schools and their communities. Between 1992 and now the Journal of Environmental Education of South Africa (EEASA) is still producing environmental education series called EEASA (EEASA, 2005). In February 2000 a booklet called Enviro Days 2000 from the Delta Environmental centre was distributed to over 2700 schools around the country (Delta, 2000). Currently (2005) the Department of Health, Department of Agriculture, Conservation, Environment and Land Affairs, the Department of Environmental Affairs and Tourism, and the Department of Water Affairs and Forestry are producing environmental education reading packs and other resource materials for schools (EECI, 2005). This revelation here suggests that the link between various institutions and schools in an attempt to promote environmental education is somewhat working. The problem is that, as learned from the fieldwork findings, these resource materials are not reaching some of the schools in Soweto. Six out of the eight interviewed schools complained that they do not receive them. Teachers also complain that they are not invited to workshops by responsible government departments and Delta. They suspect that this might be the reason why they are not getting resource packs.

One institution that has played a constructive role in the formulation, designing and distribution of school resource packs is Delta Environmental Centre. A critical look at the Centre follows:

### **c) Delta Environmental Centre**

As the Department of Education lacked sufficient capacity and resources to implement environmental education and training of environmental education facilitators, the Delta Environmental Centre was approached by the then Deputy General, Thandi Chaane, to provide teacher training programmes in preparation for the launch of the new curriculum in 1998 (Delta, 1999). Since then it has become common sense among environmental educators and facilitators that the Delta Environmental Centre is the organiser of environmental education curriculum and policy development for Gauteng (Delta, 1999). First, it was involved in the planning of environmental education resources through its Eco –Clubs, Eco 2000, and Environmental Education Resource Pack initiatives. It also played a major role in the assessment and re-planning of the environmental education C2005 in line with the OBE teaching approach. Its research in this field is so far hailed as one of the major contributions in shaping environmental education to the stage where the general public understands it better today (Ranjeen, 2003). It further played a crucial role in trying to form a bond between the schools and the Department of Education. Delta (2003: 79), confirms

*“Indeed the change from the old to a new education system where the environment has been identified not just as a phase organizer but as a cross-curricular organizer has led to the revitalization of the partnership between the Centre and the Gauteng Department of Education in a project called Environmental Education in Teacher Training and Skills Development”*

Of interest is the fact that Delta Environmental Centre has also played a major role advocacy and empowerment through training, education and development, the development of environmental education materials, engaging in dialogue with different

stakeholders (governments departments, community organizations, other non – governmental organizations) and further diversification to the roles of research and that of consultancy of environmental education and sustainable development programme (Delta, 1999). In this regard, in 1999, four workshops, each with a different environmental theme, were conducted for teachers at different venues in different districts. The workshops focused on environmental activities around common topics, and introduced teachers to environmental education themes such as problem solving, auditing and indigenous knowledge. After the period of the workshops the Delta staff visited the schools involved (Delta, 1999). The purpose of the visits, as the Enviro Teach (2000:47) clarifies, were to monitor how teachers were progressing with regard to the implementation of what was discussed at the workshops and to assist and support them with problems they might be experiencing around the development of learning programmes. These workshops made minimal impact in many schools in Soweto. According to the interviewed teachers one workshop which they should have attended was held at Soweto Diepkloof Communal Hall. But it was held over the weekend and few teachers were not interested. As a result themes such as environmental education auditing, setting school policy, etc, have not yet reached schools in Soweto. The other factor was that these workshops were done over a period of three months accompanied by single visits to schools. Schools missed on-going monitoring and support from Delta officials.

The centre needs to be hailed for its efforts but there are major problems surrounding it. First, accountability is questionable at Delta. One understands the status of the Centre as an NGO, but questions who monitors its progress from the Department of Education since it operates on its behalf. One knows for sure that there is no environmental education coordinator for the Gauteng Department of Education and that there is no office that deals with environmental education issues there. This comes to suggest that Delta was not accountable to the Department of Education for the projects that it did at schools yet it was contracted by the same department.

There was another acute concern from Area district facilitators (natural science curriculum specialists who have been converted by the Gauteng Department of Education to be environmental education facilitators in schools) themselves against the Centre. The Area district facilitators do not perceive that they have been well prepared during their pre-service training to facilitate environmental education. In relation to the least important experiences upon their development of environmental knowledge and skills, the facilitators indicate “lack of curriculum guides, in –service courses and prepared teaching materials”. The facilitators are given resource packs by DACEL, and the Department of Environment and Tourism to go and facilitate in selected schools. They have little information about these resource materials. This is one of the reasons that makes them believe that they are incompetent in carrying out environmental education projects in schools. They feel that they still need to more empowered to initiate and run projects in schools.

It was quite disappointing to hear teachers declaring that the feedback loop between Delta and their schools is so far weak. Seven out of eight schools complain that they “never receive news information from Delta advising or informing them about a particular environmental issue”. The institution does not even advertise itself to schools. Not all schools in Soweto know about Delta. The other complaint was that “there were never any visits by the Delta officials to these schools”. It is time given this information that the officials need to interact with schools so that they would know and understand what activities and projects are done there. These officials should try to move away from the idea of being armchair critics where they theorise things from a distance and come up with unfounded conclusions. “If these officials can develop the habit of visiting schools from time to time, they can be able draw case studies of environmental activities and projects that are done there” the teacher.

### **5.3. FURTHER ANALYSIS**

The discussion so far on environmental education policy initiatives and projects in the Gauteng Province tends to point to one direction. The direction is that there is poor coordination between the Department of Education and schools, Delta and schools, Area District and the Department of Education and that environmental education has not yet reached 90% of schools in Soweto. But there are other critical challenges that are contributing to the poor implementation of environmental education initiatives and projects in schools.

#### **5.3. 1. CHALLENGES**

##### **a) Poor definition of Environmental Education in schools**

Environmental education is poorly implemented in most schools in Gauteng. Poor implementation means that learners have not yet been exposed to environmental education processes, and projects. As a result most teachers in Soweto do not exactly know what environmental education is. The discussion hereunder details how environmental education is perceived and defined in schools:

Of the eight interviewed schools six of them defined environmental education as ecology and science studies. That is, environmental education was defined by both teachers and principals as “the study of ecosystem management, the cleaning of the school surroundings and the maintenance of school toilets and classrooms”. There was also a strong emphasis on “the need to preserve the existing species and trees in each school environment”. Second, all the interviewed schools showed “a strong desire to take their learners on fieldtrips, to game parks, to wilderness institutions, because environmental education is seen as belonging to these areas”. That is, teachers and principals generally treat the “ecology” as the mother-study of environmental education and as a body of scientific facts to be discovered in these institutions (Cobb, 1987; Gough, 1987). Given

this thinking it is clear that generally, teachers treat environmental education, as Gough (1987:67) argues, as a communication process to get the conservation message across so as to foster learners' environmental awareness and to change their attitudes and behaviour towards the environment. Here knowledge **about** the environment is imparted into the mind of the passive learners.

This belief, of learning **about** the environment, which became evident from the fieldwork findings, is rooted in the well-held misconception that environmental education is **about** conservation and preservation of species and **about** scientific environmental management of resources (Irwin, 1990; Gough, 1987; Palmer, 1994). Many teachers still cling to this belief that was dominant in the early 1950s and late 1960s, that environmental education is also **about** population studies and resource management (Ballantyne and Oelofse, 2000). This misconception was evident when one realized that in five schools in Orlando, environmental education was seen to be belonging to Biology and Geography learning areas. Teachers at these schools associate environmental education with Biology and Geography learning areas.

To add to that, Lean (1999: 321) in her research found that most heads of Geography and Biology departments do not see collaborating with other departments in developing environmental education as important. There is no reason not to believe that the same is true for teachers of other learning areas. Follow-up interviews also confirmed that in five out of the eight interviewed schools, themes related to environmental education were not incorporated into some learning areas such as languages and drama.

### **b) Top-Down Approach Disempowers teachers**

The new South Africa school curriculum is surely bringing about radical reforms in the practice of teaching and learning and is, in no small way, challenging traditional assumptions about environmental education as it is currently perceived and practiced by educators and practitioners (EECI, 2002). What is currently informing environmental education curriculum development in the country is that the new curriculum is the direct

outcome of the process of democratization and a concerted struggle to address political injustices of the past through transformation of the national system of education and training (EECI, 2003). This means that curriculum developers and planners, experts and specialists must consider the role and influence of educators when planning, and implementing Environmental Education projects and initiatives (Stevenson, 2004). All teachers interviewed in schools in Soweto argued that they have never been involved in any environmental education initiatives and projects. This lack of involvement suggests that environmental education has not yet made its way, in practice, into the school curriculum.

Stevenson (2004: 331) reiterates that in education issues, be it curriculum development, research, policy formulation, one expects teachers to be in the forefront as agents of change. Similarly, when OBE was introduced in schools, one expected teachers to be proactive, to be vocal and instrumental and seek ways to better and improve it. It is a pity to realize that this is not the trend today in South Africa. Education experts, curriculum developers and designers, and curriculum specialists are at the center of teacher education. Twelve out of the sixteen interviewed teachers argued that environmental education initiatives and projects are controlled, pioneered and run by the national Department of Education policy experts and curriculum developers. Lean (1999:97) sees teachers as disempowered and disenchanted. According to her they are still passive recipients of the knowledge that comes from education experts. This evidence suggests that teachers are not well equipped and empowered to enter into debates about the way in which the general education system is organized, and run in the country.

As Ranjeen (2003:167) puts it, participation in the curriculum process by the vast majority of teachers in the country is non-existent and clearly teachers are viewed merely as technicians to deliver a curriculum, which has been designed by few experts. Second, when it comes to funding, learning support materials can be delivered to schools, but all too often such resources are developed outside the social reality of participants (teachers) (Ranjeen, 2003).



*This in turn contributes to teachers' incompetence teaching environmental processes in schools. Good teaching and learning strategies and methods exist only in the rhetoric of the official documents. In some learning areas, environmental themes are incorporated in a scientific, biased way (Ranjeen, 2003:23)*

### **c) The space for Environmental Education in the school curriculum**

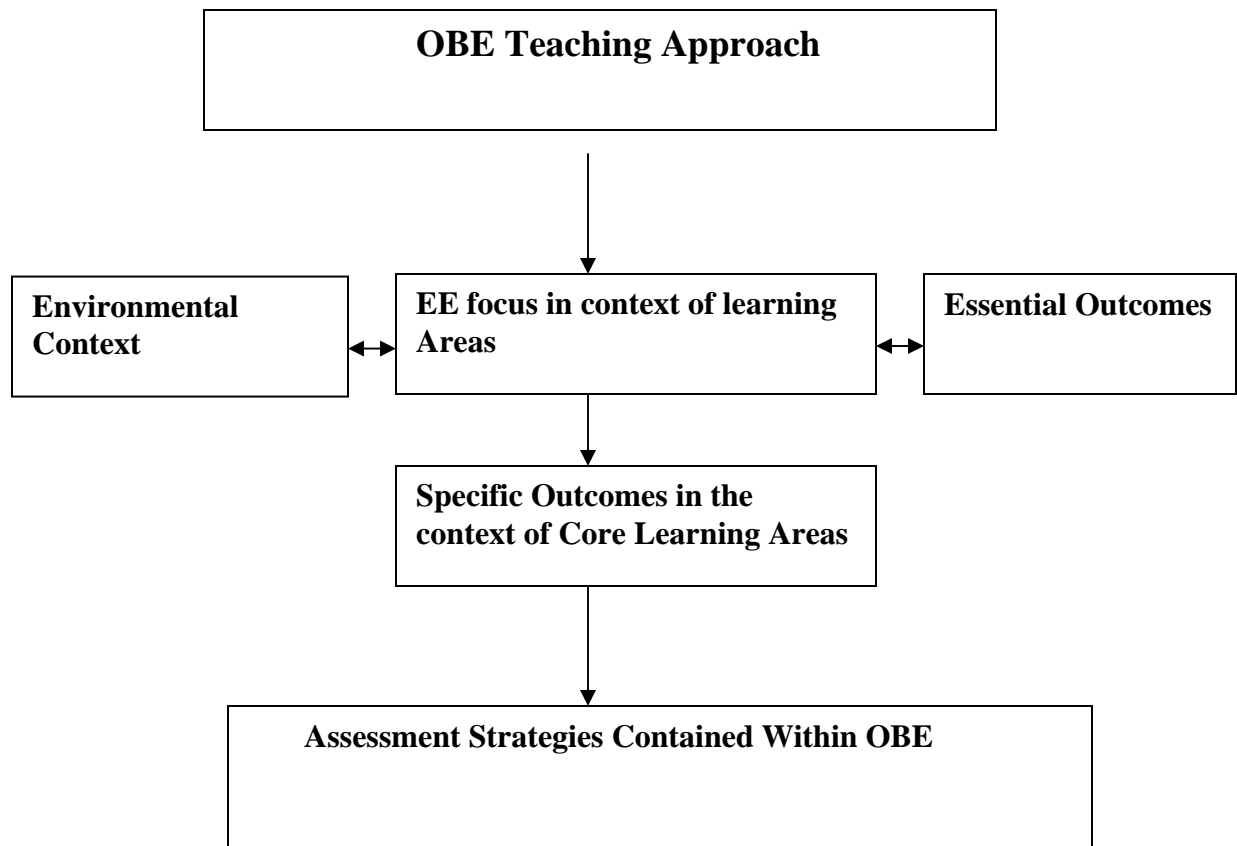
The failure to empower teachers to be key actors and agents in projects and initiatives contributed to their inability to recognize the role of, and space for environmental education in the school curriculum. It should be noted that the contention over the space of environmental education in the school curriculum has become a global problem. As Ballantyne and Oelofse put it (2000: 142), environmental education is getting little space in the already overcrowded curriculum and this has become a universal problem. Questions usually enter on whether it should remain inserted or infused into the curriculum. If it is inserted then what should be removed? Of the eight interviewed schools six of them believe that “environmental education is outside the school curriculum and should be treated as such”. Their argument is that environmental education is not a teaching subject. It is also not examinable.

Most curricula developers, however, agree that environmental education should be infused at all levels of education, not replacing existing curriculum themes but rather augmenting them with environmental examples and experiences (EECI, 2003). According to O'Donoghue (2001:67), environmental education should be conceptualized as an integral formal facet of education and not as a separate, extremely informal added component. In fact it should be identified as an orientation integral to each learning area, permeating the curriculum as an approach to education and as a particular focus (amongst others) with each learning area (EECI, 2004).

As learned from the fieldwork findings, some teachers and principals could not see the interconnectedness between OBE and environmental education. Of eight interviewed schools six of them argued that there is no real connection between the two. They see the

two as separate entities. Environmental education is seen to be confined to addressing ecological, nature –related environmental issues. True at some level, but Environmental Education issues are issues of life in general: they are about health, politics, and economy (Department of Tourism and Development, 2004). OBE is trying to engage learners in critical debates about these issues. So both have the central aim: of channeling learners on the path of being responsible citizens. The way in which environmental education values, skills and knowledge needs to be taught and assessed in schools needs to be informed by the OBE Curriculum Framework guidelines (Environmental Education Curriculum Framework, 2004). In other words, environmental education orientations are strongly located within the diverse and innovative teaching and learning methodologies and assessment strategies proposed in the OBE curriculum framework (RNCS, 2003). Refer to fig.5.3.2 below:

**Fig.5.3.2: OBE Curriculum Framework in Environmental Education Teaching Approach**



This is a schematic representation on how EE as a curriculum issue can be organized, run and implemented in schools ....Adopted from: OBE

Curriculum Framework (1999:12)

#### **5.4. Limitations of the research**

a) It has been echoed several times in this research that there is no environmental education coordinator for the Gauteng Department of Education. There is also no environmental education office there. This has to some extent limited my research because I had to collect research data from Natural science coordinators who have been converted to be environmental education officials. Their knowledge of environmental policies and initiatives was somewhat limited and this might have limited my research findings in some way.

b) The majority of my respondents at school were science teachers. Principals opted for these teachers to give me information related to environmental education projects and initiatives in schools. Teachers of other learning areas were ignored. This attitude from school principals denied me chance to learn from teachers of other learning areas about their understanding of environmental education policy initiatives and projects.

c) Only eight schools were interviewed and they were all from Soweto –Orlando. This research reflects the situation in eight schools in Oralndo.

#### **5.5. Summary**

Chapter Five is research analysis. The chapter outlines the national environmental policy initiatives in South Africa and discusses their contribution in the formulation of environmental education in schools. The link between environmental institutions, organizations, department of education and schools is further explored. This is followed by “further analysis” section. The section discusses challenges that have contributed to the poor implementation of environmental education policies and projects in schools. Towards the end, the chapter concludes by indicating that the research is somewhat limited because: only a few schools in Soweto were interviewed, the majority of my respondents were science teachers, and that there are no trained officers for environmental education in the Gauteng Department of Education.