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Enviromental Education and Networking in Mafeteng Primary Schools: A Participatory Approach

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ABSTRACT

This paper explores a participatory process of Environmental Education (EE) networking in Mafeteng primary schools. It gives an overview of the existing EE efforts in Lesotho, particularly the models schools of the National Curriculum Development Centre.

It also provides information about Lesotho Environmental Information Network as the body that drove the networking process. The paper discusses cycles of the participatory process undertaken for the EE networking in Mafeteng schools, including identification of problems, problem solving, and reflective workshop and study tour.

Finally the paper outlines issues that emerged in participatory EE networking, which include school governance, teachers' existing knowledge, and communication, decision-making and power relations.

Keywords: **Environmental Education, Lesotho Environmental Information Network, Mafeteng Schools, EE networking.**

BACKGROUND

The Mountain Kingdom of Lesotho is a landlocked country enclosed inside South Africa. It has three major geographical regions, the highlands, foothills and lowlands. The highlands are predominantly mountains covering three quarters of the country. The population of Lesotho is currently estimated at 2.6 million, growing at 2.6% per annum.

The education system of Lesotho allows both formal and non-formal education, with formal education including early childhood education, primary education, secondary and high school education, then tertiary education. Most primary and secondary schools are owned by churches, with a few private and government schools. Consequently, churches are major stakeholders in the education sector in Lesotho. (Lefoka & Sebatane, 2003)

Environmental Education (EE) is a holistic and interdisciplinary approach to questions that are of importance for human and global survival thus sustaining both human and natural entities. It encourages us to change our behaviour and attitude towards several things in our lifestyles. But that is not enough if any changes are to take place, we also must know how to behave and how to act.

That is why some scholars ratify action competency in order to address the challenges facing our environment. 'Action competency is described as a concept promotes the view that learners develop a general and sustainable capacity to participate in democratic processes and contribute to the solution of problems relating to the conflicting way we interact with our natural resources.' (Stark, 2002).

There are indications that Lesotho is seriously concerned about the global environment and this is evidenced by efforts of incorporating Environmental Education (EE) in the schools' curricula. One indication is that the National Curriculum Development Centre

(NCDC) within the Ministry of Education is working towards producing learning materials in this area. There are Education and Environment policies which both acknowledge the value of education in sustainable development.

In an endeavour to incorporate EE in school programmes the Lesotho Government initiated the Lesotho Environmental Education Support Project (LEESP). The LEESP was a Government Environmental Education initiative, based at the National Curriculum Development Centre (NCDC). It was designed to support and influence the formal education system and enhance the interrelationship between different institutions and departments in the Ministry of Education, which play a role in education and environmental education in general. Thus, the purpose was to ensure that each learner develops the necessary skills to manage the environment and to support a sustained development in Lesotho.

LEESP tackled environmental education from two angles, one is the curriculum and assessment, giving room for improvements and varying procedures, and the other is practical or methodological, targeting selected model schools. LEESP considered EE as a responsibility for the education system in the country and for each and every school. It encouraged each and every teacher to take responsibility for EE as related to the subject taught.

Environmental learning materials are essential for effective environmental learning. As most of Lesotho Primary school teachers lack innovative skills to produce learning materials, there is a need for these teachers to know how to use waste to produce learning materials, so that pupils could learn from them and eventually pass the knowledge to their parents. Schools are valuable settings for communities, such that they are interactive establishments of relations among teachers, parents, pupils, and churches. Therefore, by working with teachers one is already reaching out to pupils and parents as well. This was done in order for teachers to realize that waste can be turned into a useful resource.

Environmental Education is expected to provide skills and problem-solving approach to pupils, to find ways to cope in a sustainable way with their environment. This problem-solving approach is very important as we do not change our attitudes simply because somebody tells us do so, but rather act in the way we already know and have experience of when we encounter problems. It is therefore crucial to critically consider the kind of environmental problems we want to fight as well as the actions we want to teach our pupils. Environmental Education should help teachers to change children's attitudes towards their surroundings and adopt a better way of acting towards their environment. Consequently a lot of agencies including non-governmental organisations in Southern Africa are engaged in environmental education.

The Lesotho Environmental Information Network (LEINET) is a Non-Governmental Organization attached to the Institute of Education at the National University of Lesotho (NUL). One of the primary aims of LEINET is environmental education and being part of the Institute of Education working with schools is mandatory.

In order to expand its scope and involve a greater number of educational practitioners, LEINET approached possible partners for support including the Wildlife and Environment Society of South Africa (WESSA) that has been the implementing agency of the Southern African Development Community–Regional Environmental Education Programme (SADC-REEP) for a number of years.

In 2002 the Regional Environmental Education Support Project (REES) was conceived with, inter alia, objectives for capacity building of NGOs whose activities have a bearing on environmental education. Hence the REES and LEINET agreed to partner and consequently signed an agreement for training Lesotho primary school teachers.

Danish International Development Agency (DANIDA) was the body that financially supported the project through SADC REEP. DANIDA has intensively supported a lot of Environmental Education initiatives in Southern Africa. These include sponsoring the annual Environmental Education Association of Southern Africa Conferences.

CURRENT PROJECT

One of the environmental problems prevailing in urban areas of Lesotho is littering, that contributes to untidy streets and pollution. Littering also extends to school's premises. LEINET, considered appropriate to work with primary school teachers in Mafeteng as this district has a town centre with a lot of litter. Moreover, Mafeteng is a district that is already semi-desert and is facing serious land degradation; and good recycling projects might help improve the productivity of the land. As an environmental educator and co-administrator of LEINET, I took a lead in initiating, planning and implementing the project.

At the initial stage, Lesotho Environmental Information Network (LEINET) wanted a project to embark on littering problem by training primary school teachers in Lesotho urban schools on production of learning materials as well as other materials for home and school settings through recycling. Due to limited resources, the focus narrowed to training primary school teachers in five schools in Mafeteng. After interaction with teachers an element of exposing them to a wider range of environmental issues and problems ensued.

The project, was envisaged would benefit teachers directly who will in turn teach pupils effectively with the help of learning materials. Since schools are part of the communities, appropriate waste management could be imparted to parents of the pupils as well. From each school two teachers were nominated by their principals to participate in the project. The main context was on waste management that will be sustainable through the forming of clubs and a district Network.

LEINET's networking background shows that it has potential to form more networks and has outreach mechanism to communities of various levels on environmental education and awareness. LEINET has realized the need to form the Lesotho Schools' Environment Network that can eventually promote school environment clubs and eco-schools.

This project title was named "Training Teachers Workshop on Waste Management and Environmental Issues" (called the Training School Teachers Project for short). At an early stage the 'project' started by listening whereby the organizer, LEINET, paid attention to the learners' expectations and therefore acceded to their suggestions for expanding the theme to include 'environmental issues and problems'. In a way, this expanded the scope and teachers were able to relate other issues to waste management. The planning, implementation and management for the Training School Teachers Project took place over a period of eighteen months: April 2003 until October 2004.

PROJECT OBJECTIVES

LEINET and SADC REES embarked on a waste management project with 10 participating teachers drawn from five primary schools in Mafeteng, namely, St Gerard's, St John's, Ramokoatsi, Mount Olivet and Likhoele. The project's aimed to:

- **Enhance awareness amongst teachers on the environmental problems and issues which prevail in Lesotho, particularly in urban settings and the ways towards contributing to their solutions.**
- **Strengthen and develop skills in teaching EE using learning support materials made from recovered matter. These should promote learning by doing, hands-on and active participation model.**

- **Kick start the Lesotho Schools' Environment Network.**
- **Link recovery of waste and waste management to other environmental problems and issues.**

These aims were explored through several action research inquiry cycles with the primary schools teachers in Mafeteng.

PROJECT DESIGN

The process started by briefing and involving the Ministry of Education and Training (MOET), NCDC and particularly the LEESP team to take part in identifying schools and designing workshop content, thus experiences were shared, then briefed Central Inspectorate, MOET and solicited their support. Thereafter with the help of Mafeteng District Education Officer (MDEO) we identified schools in dire need of EE, then met school principals who were already hinted about the project by the MDEO. Later on School Board members, school owners and local chiefs were briefed in order to solicit their support.

The project was designed such that a Lesotho Schools' Environmental Network was formed. Its aim is to promote 'shared' learning and teaching opportunities. Whilst the initial was to promote partnership in EE, avenues for exchanging other experiences, resources and expertise could be investigated. This could include eco-schools, enviro-schools, greening schools, school environmental clubs and others. When SADC–Regional Environmental Education Programme Support Project started, LEINET saw it was an opportune time to fulfil these longstanding aspirations, and considered appropriate to do so by training Primary Schools teachers.

The objective was to have two separate training sessions with an interval of six months in between. The first two months of the interval was used to observe teachers at their schools, to see how far they have gone in identifying problems and solutions in developing materials and how much they had involved pupils and parents. The second workshop was based on experiences of the teachers during the interval period. It was during the second workshop that the idea of a study tour that would add more meaning and value to the teachers' learning process was established.

ORGANISATION AND IMPLEMENTATION PROCESS

Participatory waste management in Mafeteng primary schools was framed within an action research orientation. The decision to use action research approach was influenced by Allen (2001) who argues that lasting improvement requires that the participatory action researcher helps subjects to change themselves so that their interactions create conditions for inquiry and learning, thus helping to develop the self-help competencies of people facing problems. Furthermore, Lotz (1996) asserts that action research is a form of self-reflective enquiry that can help improve the 'rationality and justice of practitioner's own practice.'

The major factor is that one of the project's objectives was to establish an environmental network, this required collaboration and active participation of the people to form the network. The best method that involves collaboration and participation is the action research that is defined as "critical collaborative enquiry by reflective practitioners, who are accountable in making the results of their enquiry public, self-reflective of their practice, and engaged in participative problem solving and continuing professional development" (Zuber-Skerritt in Allen, 2001).

It is argued that action research involves three cycles that are not only complicated but also often interwoven phases of planning, action and reflection (Lotz, 1996). After planning, acting and reflecting one may proceed to form other cycles depending on the

outcomes of the reflection process. In the case of this study, there were five cycles illustrated in Table: 1 below. However for purposes of this paper, which focuses on networking discussions, the first cycle on school environment status will not be discussed.

Table: 1
Cycle of inquiry General focus

Schools Environment status	**Establishing the status of the school before the project: this involved the participants to fill a questionnaire designed.**
Identification of problems and action planning workshop	***Training of teachers on waste management workshop*: Teachers worked together to define environment, waste, identified problems in Mafeteng, demonstrations, practiced recycling and action planning.**
Action and monitoring	***Implementation:* implementing the action plans, and monitoring process by the teachers themselves as well as the researcher.**
Reflective Workshop	***Reflective Workshop*: the teachers shared success stories and challenges, factors that contributed to such successes and challenges**
Learning from the advanced	***Study tour:* teachers and LEINET visited the DTEEA in Free State Province, South Africa to see environmental clubs in action and role of networking.**

Training of teachers on waste management workshop

The workshop brought together all the 10 teachers for the project and was facilitated by three resource persons, LEINET chairperson, SADC REES Non governmental organisations coordinator and myself. We started the five-day workshop by asking the teachers to outline their expectations of the workshop, which were summed up as gaining skills that will help in protecting and conserving the environment and learning how to alleviate the environmental problems in Mafeteng Town and the District at large. The initial discussions of teachers' expectations gave rise to five workshop objectives:

- **To create awareness of environmental problems in Lesotho through action research approach.**
- **To use recovered materials to produce learning support materials (LSM) for teaching purposes.**
- **To link recovery of waste and waste management to environmental education.**
- **To start schools environmental education network.**
- **To introduce the idea of schools' environmental clubs.**

Teachers explored their personal meanings of the term 'environment' through brainstorming, and these are included in Table: 2.

Table: 2
Project teachers' meaning of the term 'environment'

Everything around us	food	cleanliness	space
Ozone	health	place	water
waste/pollution	flora	land	animals
Fauna	minerals	people	transport
Management	behaviour	education	

From Table: 2, it is evident that teachers understood that the term environment is broad and covers aspects that are not only tangible but also tacit, invisible phenomena such as behaviour, management and education are elements of environment as they affect human beings' decision making, actions, competencies, and interactions towards the natural resources.

It was during the workshop that concepts of waste management, meaning of plastics, identifying prevailing wastes in schools and deriving management strategies such as reuse, recycling, reduce and repair were explored. At the same workshop demonstrations from Local Government, Appropriate Technology Section (ATS) and Tin/Can Company of their products which are not only made of recycled matter, but are also energy saving gadgets. These products included stoves made from scrap metal, cans, as well as solar cookers and dryers. The purpose of the demonstrations was to allow teachers to see some of the practical aspects of waste management. ATS also presented biogas technology that promotes human waste management. A tour of Mafeteng to see dumping areas, identifying types of wastes, sources of these wastes and possible solutions to these problems was also included in the workshop. The participants recycled paper and plastics. On the last day of the workshop, teachers from one school sat down together to identify their school's environmental problems and what they would do to solve such problems. This session resulted in action plans for all the schools.

During the workshop, it was obvious that the teachers were already aware of recycling and reuse techniques, and that they know and have solutions for the environmental problems such as soil erosion and pollution, but they lack systematic means to implement these such as a lack of school policies. Consequently we asked the teachers to identify their schools' environmental problems and means of alleviating those problems through projects; they drew up action plans for their projects to pursue when they go back to their schools.

Mafeteng Schools Environment Network

During the workshop the teachers decided to form their own network - Mafeteng Schools Environment Network (MSEN). The action plans drawn during the first workshop were implemented by the various schools and efforts to kick start MSEN were visible, including the election of a Committee for MSEN with proceedings of the meetings available as evidence for the activities of the Network. The teachers had decided on rotating meetings around the schools, so that each school has the chance to host the meeting. Network teachers envisaged that rotating would not only help motivate participation of other teachers, particularly those that are not supporting the Network projects, but also permit monitoring of progress made in each school. This was an enabling policy issue because when attending a meeting at Ramokoatsi Primary School, the teachers reported progress made by each school and the hosts not only reported, but also showed what they had done in the classrooms and gardens. This enabled intensive discussion of Ramokoatsi activities. For instance, they had dug round pit holes for tree seedlings and immediately other teachers suggested that tree pit holes should either be triangular or rectangular to allow roots to penetrate the soil.

Another important knowledge sharing was the use of tins/cans for planting potatoes, which not only uses waste materials, but also helps scare the millipedes from attacking the potatoes, while at the same time the yield has iron content. The method used is to dig a hole, put a can in the hole and place the potato seedling on top of the can and cover with soil. Whist there is no apparent literature on this method it is obviously a farming practice in use in Lesotho.

Reflective Workshop

A two-day reflective meeting was held at St Gerard's Primary. It was in response to the teachers' lack of cooperation among the staff at this particular school. During the workshop, teachers shared successes and challenges regarding implementation of action plans drawn during the first workshop. It was evident from the teachers' presentations that substantial progress had been made. Some successes included recycling efforts of paper, plastic and tins to make briquettes, cushions, mats and trays respectively. Grass and tree plantings were reported even though drought was still a challenge at the time. It was also evident that teachers are working with their pupils as well as other teachers in carrying out their EE action plans. Some teachers stated that while cooperation from other staff at the beginning was minimal, it had increased when the first workshop report was received, as it was well written with illustrative photographs.

One of the challenges was poor record keeping, either of minutes of the Network or progress reports on action plans. For instance, teachers could not confidently report when seedlings were planted, how many seedlings they had, the height of the seedling during plantation and growth progress. Secondly, vandalism at school premises affected their projects. For example, gardening, tree and grass planting is destroyed by cattle and people either in the evenings or during the school holidays. In the case of Mount Olivet Primary School, which had constructed a clay oven for domestic science, it was reported that the oven was vandalised by cows roving freely within the schoolyard. The teachers alleged that those cows belong to the local chief. Lastly teachers were still not happy with the support of their principals, stating that they lack enthusiasm in participating fully in the project activities, and that this had a bearing on other teachers' support.

A study tour was apposite for augmenting environmental education networking and consolidating what the teachers learnt during the waste management workshop, implementation and monitoring and reflective workshop.

Learning from the advanced

A three-day study tour was taken to the Department of Environment Tourism and Economic Affairs (DTEEA) in the Free State Province, South Africa. DTEEA head office is in Bloemfontein in the South Africa, and the tour included Bloemfontein and its neighbouring area of Botshabelo, Thaba Nchu and Soetdoring. The tour included visits to the Maria Moroka and Soetdoring EE Centres, some schools where we met members of environmental clubs, and the community cultural club in Botshabelo. Finally we had a discussion session with DTEEA officials at their Head office.

'Study tours are cooperative activities meant to promote mutual understanding and learning through experience, as they enable participants to learn first hand about the actual conditions and activities of the host organisation/institution. They enabled the participants to communicate with local organizations and people with a similar standpoint, and take part in national, regional or international partnerships. Therefore, study tours enhanced understanding the actual conditions, gaining of global point of view and carrying out cooperating projects.'(Tanaka, 2001)

The broader aim was to obtain ideas on establishing and managing environmental clubs at school level. Because schools do not operate in isolation from the rest of the community, learning about youth clubs was an added value. The teachers conceptualised an environmental club; had an opportunity to look at environmental clubs' constitutions,

guidelines and objectives; observed and studied environmental clubs in action and how they operated and networked amongst themselves and link with other environmental agencies; and established the role of the government in the promotion of the environmental clubs.

PROJECT FINDINGS AND OUTCOMES

Several issues emerged out of this case study and these included the role of existing governance structures, existing knowledge, and communication, decision-making and power relations in human context.

Sensitivity to existing school governance structures

Most schools in Lesotho, about 98% of primary school and 92% of secondary schools are church owned. Provision of formal education is therefore a joint responsibility between the government, the churches and the community (Lefoka & Sebatane, 2003). The Ministry of Education and Training, being the government mouthpiece on education matters, pays teachers salaries, formulates and monitors implementation of educational policies, passes legislation and regulations governing schools. It further develops and implements curricula; provides infrastructure for schools and supervises the teaching service. The churches own schools; manage the daily operations of the schools; they directly participate in the employment, transfers and dismissal of teachers. While the community, that is, parents with children in schools, pay school fees where necessary, and occasionally contribute financially to the provision of infrastructure, they are also represented in the School Advisory Boards.

Consequently, school governance consists of government, churches, principals and advisory boards. Notwithstanding chieftaincy as it a form part of the school advisory boards and governs the schools under their jurisdiction. All these are crucial structures and it was important to be accepted by all of them in order for the EE networking to be successful. Lupele (2003) when working with rural communities in developing materials established the importance of being accepted by the community.

When planning for the implementation of the project, we had to present our proposal to the Ministry of Education, National Curriculum Development Centre, as it was hosting the LEESP in schools, so that they know our intentions and convince them that our project was in synergy with LEESP while soliciting their support. Consultations were made with the Likhoele Principal Chief, District Secretary and Senior Education Officer Mafeteng, the latter one recommended schools that we worked with and helped to inform the school boards and school principals about the project and requested their support on our behalf. This made our work much easier.

It was clear that one needs support from all the potential participants, because all those consultations would be meaningless if the teachers had made our work difficult without receiving the expected support to LEINET. 'Often NGOs working in rural communities concentrate on soliciting support from the traditional leadership, while these could easily give anyone permission to work in a particular community, they have limited control over individuals participation in development programmes'. (Lupele, 2003). Nevertheless, judging by the teachers' enthusiasm and levels of participation throughout the entire process, they had accepted the project as theirs. We learnt from the school principals that the schools have different committees and they selected those teachers who fall under the environment and hygiene to work with us and that could have been a contributory factor to the success achieved.

Drawing on teachers' existing knowledge

The teachers exhibited a wide range of knowledge of the environmental issues affecting them. These issues were identified based on their own experience of the trends and changes in the availability of natural resources in the area over time as well as emerging new phenomena such as buildings, dumping areas, gullies. Knowledge in the case of

teachers correlated with age. The teachers' age ranged from late 20s to mid 50s. The eldest teacher (male) had a lot of indigenous knowledge and proved to be quite a reader as he often cited things that he had known since he was a boy herding animals, whilst at the same time referring to recent newspapers, magazines and books. The youngest teachers had limited knowledge and yet one would expect them to be well informed with the latest environmental information as they had recently left college, while others were still studying part time doing higher teacher education certificates and degrees. The teachers' knowledge determined the projects they wanted to do within their schools and together with the Network.

Communication

The fruits of consultations with the school governance structures were visible in helping with communication. All the five primary schools in the project do not have a telephone line. However, they are situated near their churches that do have telephones and this assisted communication for the project, especially when communication had to be done urgently. Communication is vital in networking as 'networks facilitate effective communication among members through the dissemination and exchange of environmental information' (Nthunya, 2002). The latest technology of cellular phones was helpful. Many of the teachers have cellular phones and these became our mode of communication either by direct phone calls or through short message service (SMS), particularly in calling meetings.

Decision making and power relations

Participation included the processes of decision making and sharing of power in this study. The teachers had to decide on the name of their network during the first workshop. They were free to debate issues as the atmosphere was enabling debates and free thought. This is attributed to ascertaining that everyone's contribution is important and teachers should not be intimidated. Another aspect is the fewer teachers that we worked with made it easier for inclusive participation as time allowed one to give a view on each point being debated, which might have been impossible if we had worked with a large group.

Creating a flexible open process is an aspect of action research and it comes with experience of working with various people over time. LEINET has this experience since its inception in 1995 as it has been actively involved in networking and working closely with people through action research.

The other decision making process involved electing the committee members, defining the role of the committee as well as the rest of the members. Deciding on the objectives of the Network and what it wants to achieve. This included identifying pertinent environmental problems in their respective schools as well as in Mafeteng. Another aspect included the decision on the way to keep the Network alive and identifying stakeholders.

CONCLUSION AND RECOMMENDATIONS

According to Russo & Lotz-Sisitka (2003) the term participation is highly contested and sometimes misapplied in development work, education and materials development. While Lupele (2003) asserts that community participation in policy initiatives involves careful consideration of the different interests and roles community members play in a participatory process.

These roles are not static, but they change with time as people assume new roles or change existing roles, therefore, participatory process must be kept open to allow for these changes.

The role played by the Senior Education Officer was very important in making the project a success and it is still important in keeping the MSEN lively even long after LEINET has

left Mafeteng. It enabled the missionaries and the school principals who in turn gave us the relevant teachers to be supportive although the former two were not directly involved in networking. This enabled teachers to participate freely knowing that all their authorities support their involvement in the project. It was also clear that the level of principals' support for the project still differed from school to school. This is an important factor to bear in mind while one does any research or activity with schools in Lesotho.

Consideration of the prior knowledge of teachers and infusing this into the project, added value to the teachers' participation as they felt recognized and this had influence on their roles. For instance, the experienced elderly teacher later on assumed the role of information reference. Teachers were encouraged to participate fully in anyway that they could, such that one of the teachers who was a deputy principal offered her school to be the secretariat for the Network and was elected as the chairperson of the Network. This could be attributed to her leadership skills.

Teachers knowledge, skills and information allowed them to identify projects for their respective schools and for the Network and even enabled them to know where they had limitations and whose assistance they would seek. For example, with tree planting, they decided to get help from the Forestry department, and for water management they went to Conservation department and they also called for help from Agricultural demonstrators. This was not only a demonstration of a networking skill, but also ability to see problems, take initiative to solve them using the resources available.

This study accentuates the importance of understanding the local milieu with all its ambivalences, if participation goals are to be achieved. Factors such as existing governance structures, participants' prior knowledge and skills, social relationships, and open communication modelled the way in which teachers developed their network and how they participated in the project. Even though the results are specific to the five selected Mafeteng Schools, there are lessons that can be drawn and found applicable in different settings.

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