

Promoting environmentally responsible behaviour through indigenous knowledge: A challenge for implementation of education for sustainable development in Lesotho

Mohaeka Raselimo*

Abstract

Indigenous belief systems have helped to shape environmental behaviour of children in many African societies in the past. There were frightening myths that helped to conserve water, animal and plant species. For example, urinating in running streams of water would change children to the opposite sex and wanton killing of birds was associated with difficult times during circumcision on the part of boys. All these beliefs and myths were intended to discourage children from polluting water and destroying the wild life, even though, seen from another perspective- political liberalism, were not based on scientific and democratic principles.

Environmentally responsible behaviour is a measure of the extent to which a person is prepared to take an active part in protecting and improving the environment. It is one of the three aspects of environmental literacy, the other two being knowledge about environmental issues and attitude towards the environment. There is evidence from research that environmental knowledge and attitude influence one's behaviour towards the environment. The wisdom behind the use of indigenous knowledge in the Basotho traditional society was perhaps, based on the assumption that children would refrain from their bad habits if they were made to believe the myths relating to nature conservation told by elderly people. However, indigenous knowledge has been, to a great extent, marginalized in the contemporary educational system and the consequence of this is the growing negative environmental behaviour among school children, thus presenting a challenge for the implementation of education for sustainable development. Based on the findings of a qualitative study, which documented myths, beliefs and traditional practices relating to environmental conservation and protection, this paper argues that indigenous knowledge has an important role to play in promoting responsible environmental behaviour of individuals and thus it could be integrated into instructional processes of environmental education in all sectors of education. It further highlights the challenges that are facing implementation of IK within the ESD dispensation. The paper concludes by recommending that the IK systems should be further researched and selectively documented for application in ESD. The paper further recommends that teachers should pay a greater attention to the importance of community involvement in teaching environmentally related issues since community is the custodian of traditional knowledge.

Introduction

It is difficult to give a universal meaning of indigenous knowledge (IK) due to different environmental and cultural conditions, which influence people's perceptions and utilisation of the environment. However, IK is often defined

* M. Raselimo is a lecturer in the Department of Language and Social Education at the National University of Lesotho

from the perspective of human-environment relationship because it develops as members of a social group interact with the environment in which they live. According to the International Institute of Rural Reconstruction (IIRR) indigenous knowledge is:

... the knowledge that people in a given community have developed over time and continue to develop. It is:

- *based on experience...,*
- *adapted to local culture and environment,*
- *dynamic and changing (IIRR, 1996:3)*

Still in line with the IIRR (1996), the Indigenous Knowledge and Development Monitor defines IK as

the sum total of the knowledge and skills which people in a particular geographic area possess, and which enable them to get most out of their natural environment. Most of this knowledge and these skills have been passed down from earlier generations, but individual men and women in each new generation adapt and add to this body of knowledge in a constant adjustment of changing circumstances and environmental conditions. They in turn pass on the body of knowledge intact to the next generation, in an effort to provide them with survival strategies (Editorial, 1998:2).

These definitions suggest that indigenous knowledge should be understood within the environmental and cultural contexts in which it is developed. It is a reflection of how people perceive their environment through a continuous process of observation and interpretation of what they see around them (Seeland, 1997). Indigenous knowledge is often contrasted with western or international knowledge developed by modern universities (IIRR, 1996). Unlike the western or international knowledge, which is acquired through formal learning, IK occurs subconsciously as children interact with elderly members of the community; and it is passed from one generation to another in a socialisation process. In that process, the knowledge may change depending on environmental and cultural contexts of the time, which influence technological and ideological systems of a society.

Given the diversity in physical environments and cultural backgrounds, indigenous people are opposed to adoption of a universal definition of indigenous knowledge and they would rather prefer that traditional knowledge be acquired and used in line with the customary laws of the peoples concerned (UNEP, 1999). Indigenous knowledge may be thus perceived as *peoples' knowledge* based on philosophy of life in a given community. According to the IIRR manual of 1996, it is acquired in different forms as information, beliefs and myths, taboos, traditional practices and other traditional means of communication, which are unique to each indigenous culture. This method of transmission implies that IK can be

loosely used to mean traditional knowledge based on community norms and values (IIRR, 1996). For this piece of work, indigenous knowledge is used interchangeably with traditional knowledge or local knowledge.

In most African communities, traditional knowledge systems have helped to influence or shape environmental behaviour and the attitude of people (Maembe, 2001, Nwonvu, 2001 and Asabere-Ameyan and Ananuah-Mensah 2003). In Ghana, there is evidence from research that traditional knowledge systems have been used to encourage sustainable use of resources by promoting certain beliefs, taboos and practices (Asabere-Ameyan and Anasameah-Mensah, 2003). Ghanaian indigenous people are reported to engage in sustainable measures of pest control, food processing and food security. For example, ash is used to control pests and increase soil fertility without destroying the texture and structure of the soil. In addition, Asabere-Ameyan and Anasameah report that Ghanaian traditional tribes have taboo systems and rituals that are intended to promote positive environmental attitudes and behaviour as part of environmental management system. Such taboos include myths relating to totemic animals for all clans within a tribe. It is believed that a clan member who contravenes these myths suffers from serious consequences, sometimes leading to death.

Like most African societies, Basotho also had strong traditional belief systems that were intended to encourage conservation of natural resources by fostering positive environmental behaviour among children. For example, there were frightening myths and taboos which discouraged children from polluting water and killing certain bird species. Urinating in a running stream of water would turn one into the opposite sex, and killing a hamerkop ('Mamasianoke) or interfering with its massive nest meant that one's home would be struck by lightning. This was a common belief among all Basotho children. Such indigenous knowledge, based on belief systems, was transmitted from one generation to another as part of Basotho indigenous education. Basotho indigenous education progressed in accordance with the maturity stages of children (Ashton, 1959, Moorosi-Molapo, 1998). Children were warned against certain things without much reasoning and the "truth" would be told as they were initiated into adulthood.

All these traditional knowledge systems had the power to shape the environmental behaviour of people and therefore communities were able to conserve natural resources. Environmentally responsible behaviour is a measure of the extent to which an individual is prepared to take an active part in protecting and improving the environment (Yeung, 2002). It is one of the three aspects of environmental literacy, the other two being knowledge and attitude. Behaviouristic teaching approaches, which characterised environmental education in its early days of evolution, assume that the *right*

knowledge and *right attitudes* lead to development of the *right behaviour* (Fien, 1993A). Thus responsible environmental behaviour can only be achieved if people have knowledge about environmental issues, and have positive attitude towards the environment (Ivy et al, 1998 and Raselimo, 2003). Therefore, the wisdom behind the use of indigenous knowledge systems to encourage conservation of resources was that children would refrain from actions that destroyed the environment if they were made to believe in myths and stories relating to protection of animals, and conservation of plants.

Although there is evidence that IK has the potential to influence people's behaviour towards environment, it has been, and continues to be marginalised in the formal school system. Many children attend urban schools and residential schools, which cuts the ties between children and their parents as well as their grandparents, who would otherwise pass the necessary indigenous knowledge to them. Children are not allowed to speak their mother tongue (Sesotho) in many schools and yet a lot of indigenous knowledge is communicated through mother tongue (Matthew, 1999). This creates a gap in the transmission of local culture and knowledge. The marginalisation of IK in the formal school systems has resulted in serious environmental problems emanating from a *selfish relationship* between children and the environment. This paper outlines Basotho traditional beliefs, myths and practices, which influenced people's behaviour towards conservation of water, animals and plant species. The paper further develops arguments that IK has a role to play in the formal education system for meeting the challenges of education for sustainable development.

Description of the study

In an attempt to understand Basotho indigenous knowledge systems that were intended to correct environmental behaviour of children, I analysed a book on Basotho totems, local research reports on conservation of indigenous plants, the Lesotho Constitution, Environment Act 2001 and a policy document on Basic Education for Lesotho. Interviews were also conducted with an education expert because of his specialised knowledge in Basotho culture, and a representative of Lesotho Council of Traditional Doctors, because of his special training in Basotho traditional medicine. The education expert was asked to comment on myths, beliefs and traditional practices relating to conservation of totemic animals, water and some plant species, while the traditional doctor provided information relating to conservation of medicinal plants. The interviews were conducted in Sesotho and later translated into English.

A tape-recorder was used to capture interview data to allow a careful and deeper analysis at the later stage. The data were analysed using

qualitative techniques involving extracts of the documents analysed and verbal responses from the two participants interviewed.

Findings

Myths around conservation of water

There were frightening myths that were intended to protect water from pollution and also to protect children, particularly boys, from water borne diseases. Children were frightened that urinating in water would change them into the opposite sex or their cow would calve in water. According to an expert in Basotho culture this myth was based on science since Basotho knew that there are some bacteria living in water, which normally move in a direction opposite to the flow of water. Therefore such bacteria would flow against the flow of urine until they entered the male organ and infect the children. He said this threat was meant mainly for boys. As could be imagined, these myths had the power to prevent children from urinating in water and thus minimised water pollution, which can cause water borne diseases such as *giardiasis*.

Conservation of animals

Basotho have many different totems, which were highly valued in the past. Each totem identifies with a certain animal, which is used as an emblem and regarded as a god-protector (Ashton, 1959). The table below shows some of the Basotho totems and their animals.

Totemic Animals

Totem	Animal	Local Name
Bafokeng	Hare	'Mutla
Bahlakoana	Crocodile	Koena
Bakoena	Crocodile	Koena
Barolong	Deer	Tšephe
Basiea	Cat	Katse
Batlokoa	Lion	Tau
Bataung	Tiger	Nkoe
Batloung	Elephant	Tlou
Batsoeneng	Baboon	Tšoene
Makhoakoa	Crocodile	Koena
Makholokoe	Cock	Mokoko
Matebele	Elephant	Tlou

Adapted from Matsela and Moletsane(1988)

As reflected in the table above, most of the Basotho totems start with "Ba" which literally translates to "those of", implying very close ties between the clan members and their totemic animal. According to Ashton (1959), the

reasons for adoption of animals include among others, the belief that when Basotho came out of the marsh at *Ntsoanatsatsi*, each tribe received an animal as an emblem, which would be regarded as a *god-protector*. Each clan respected their totemic animal and would not kill it or eat the meat from such animal. If any one killed such an animal he was looked down upon as sacrilegious and worthy of punishment from the gods (*balimo*).

In the same way as the table shows, Ashton (1959) also notes that some *Bafokeng* venerated the hare. Put in his words:

if they (members of the Fokeng clan) killed one, they would assemble in the village court and then beginning with the chief, they would each bite the end of the animal's ears; and then rub their foreheads with the carcass, as if by that means they would be endowed with the virtues and benefits their seboko (totem) was able to grant.

It is not clear from the work of Ashton whether the animal would be eaten after this ritual. However, the ritual implies that the hare actually belonged to the clan and the chief, who is a representative of the ancestors, had to grant forgiveness to a person who happened to kill the animal and then the whole clan would be granted with luck.

An expert in Basotho culture also reported that Basotho associated themselves with these animals for various reasons. One of the reasons he gave in an interview is that Basotho traditional communities admired the qualities of certain animals and used them to model their lives. For example, Bafokeng admired a hare since it was famous for its tactics, which helped it to survive, even though it is so small. He further explained that this association was, in some cases, intended to mark events or instances such as the birth of the founder of the clan. He explained the origin of Bakoena as follows:

Bakoena have their origin in the birth of their forefather Mokoena. Crocodiles attacked cattle at the kraal on the day he was born. This was unusual. He was therefore named after this instance. (Recorded on 11/06/03).

From this explanation it is clear that the crocodile was regarded as an ancestral figure and a sacred animal for Bakoena. This belief strengthened the relationship between members of the clan and the animal. The close association of Basotho with totemic animals suggests that Lesotho once had a rich wild life. It could also be that some of the animals, which are not found in Lesotho, were met during the early migrations in the southern African region.

Since the totemic animals had admirable qualities and were regarded as sacred, it was a normal practice for all tribal people to respect an animal that represented their clan. They would not kill it or if they mistakenly killed

one some ritual had to be performed. Perhaps, this was one way of expressing their sorrow. This connection between people and animals compares with taboo systems in some other parts of Africa where communities are organised in clans that have totemic animals which are not supposed to be killed for fear of misfortune or death (Asabere-Ameyaw and Anamuah-Mensah, 2003). Such a tradition is reported to have a restraining influence on the consumption of wildlife among African traditional communities and thus tends to conserve wild animals.

Based on the value attached to totemic animals it would seem that children were indirectly encouraged to respect the animal kingdom. However, the question of whether this indeed helped to conserve wild animals is beyond the scope of this study. I could nonetheless argue that this practice influenced the attitude of clan members, particularly children towards their totemic animals and therefore they would be more willing to protect these animals.

Basotho also practised sustainable hunting behaviour. They had a traditional practice called *molutsoane* which was performed as a way of praying for rain. In this traditional practice they would together hunt and kill as many animals as they could, but for sustainability avoided those that were young and their mothers. When asked to elaborate on this traditional practice, the expert said that hunting was done only in those areas where there were many wild animals and this therefore did not have much effect on reducing the number of animals. In addition to its religious function, this traditional practice seems to have been an effective strategy of maintaining a balance between the available grazing land and the size of herds (Mahammad, 1998).

Myths around conservation of birds

Children were warned not to kill a hamerkop because their homes would be struck by lightning. When asked to explain why this bird was associated with lightning, an expert, in an interview explained that this bird likes water and its prey live in water and water naturally attracts lightning. "The myth was in that respect practical and based on scientific principles", he argued. This was confirmed by a traditional healer, who said that a hamerkop was used as an ingredient in the production of lightning, and if one killed it he had to be fortified, lest he was struck by lightning.

There was also a myth that boys who killed birds wantonly would have difficult times during circumcision and might even die. Both of these myths were frightening enough to discourage boys from wanton killing and therefore helped to promote a wild life conservation code among children. Such traditions were perhaps, directed to boys because they were closer to the land and its resources than girls.

Conservation of plants

In the past, Basotho children especially boys, knew most plants by names and could easily identify areas where such plants would be found. They knew the plants that were useful and those that were dangerous, either to their own health or the health of their animals. The plants that were believed to be harmful were avoided. One of such plants is *monkhoane* (*Heteromorpha*). There was a myth, that if this shrub was burnt there would be lightning. A traditional doctor who was interviewed said that children were made to avoid this plant because its smoke was dangerous to them if inhaled. He further explained why the plant is called *monkhoane* by referring to the Sesotho saying, "*ho e hlaba ka monkhoane*" which literally means one leaving a place unceremoniously and never to come back again especially after a quarrel with someone. Therefore, there was a fear that if this plant was used as firewood some family members would forever leave home for an unknown place. According to the traditional doctor, the purpose therefore, was to conserve this plant since it is very strong in making traditional medicines. This shrub would also be avoided because of its other name '*makatlala*, which translates 'the cause of famine', and also because the same shrub has a special cultural heritage in that it is associated with *Menkhoaneng*, the place of birth of King Moshoeshoe I, the founder of the Basotho nation (Chakela, 1999).

There is also another plant called moomang (*Gnidia burchellii*), which was explained by the traditional doctor as implying death. So people would avoid this plant for fear of death. This plant was also believed to cause quarrels in the family when used for firewood.

The role of legislation

Traditional laws such as the *Laws of Lerotholi* reinforced conservation of indigenous plants. In terms of these laws, some areas with important indigenous plants were set aside and protected as *maboella* (reserved area). Section 31 (5) of the Laws of Lerotholi clearly prohibits cutting or destruction of indigenous trees as follows:

No one shall, without a prior permission from his/her chief, cut or destroy ...any other tree or forest, whether indigenous or planted, except in the case where the tree or forest is his/her own personal property. Any person who contravenes this law and found guilty shall be liable to a fine not exceeding R10 [about 1½ US dollars] or to one month imprisonment or to both. (Laws of Lerotholi, 1998:30) [Translation by the author]

The law, as stated above, gives the chief, as a traditional leader, the power to control the use of resources and thus encourages sustainable utilization of forests. Whoever, wanted to cut a tree in a forest had to seek permission from the chief. This traditional law has been more important than any

statutory law on conservation of indigenous forests in Lesotho. May (2000) observed that, despite the introduction of democratically elected Village Development Councils, people still act according to the wishes of the chief rather than consulting community councils they themselves have democratically elected. This conflict between statutory laws and traditional practices suggests that any environmental conservation law which is not compatible with the indigenous culture of the local people is likely to face resistance or receive only a partial implementation.

A reflection on IK systems reported in this section of the paper triggers an important question of whether these forms of IK are a worthwhile curriculum knowledge in Lesotho, particularly in this era of globalisation. Could inclusion of the beliefs and myths be of value to the teachers and learners in Lesotho? What forms of IK would make sense to the learners who are taught to think scientifically? In the following section I examine the rationale for including IK in the formal education, which is carried out within the ESD dispensation, and highlight challenges that are likely to be faced

Incorporating Indigenous knowledge into formal school learning

There is a growing recognition of the need to incorporate IK into formal education in order to promote sustainable conservation of natural resources, particularly with the advent of education for sustainable development (ESD). The rationale for the incorporation of IK into formal school curricular is that it is less expensive, readily available, environmentally appropriate and familiar, and most importantly, it has a proven record of effectiveness (IIRR, 1996; Mahammad, 1998). As the name suggests, education for sustainable development emphasises sustainable use of resources, and it is internationally recognised that it should address social and economic issues from many different perspectives including indigenous knowledge. As Tilbury (2005) notes there is need to bring all people from all walks life to share experiences and ideas on sustainable life styles. Local knowledge would thus be useful for recontextualising ESD so that it is locally relevant.

Until recently, Nigeria was the only African country, which had successfully incorporated IK into the formal educational system. In South Africa there are school curriculum initiatives, which are intended to introduce IK as an integral part of school environmental education programme. In Lesotho little has been done to take up the challenges of integrating IK into formal learning. The previous section of this paper has documented a few examples of traditional knowledge that has helped local communities to engage in a sustainable conservation of natural resources through fostering responsible environmental behaviour among the children. This knowledge is no longer strong and valued because of, among other factors, colonial influence on education and the forces of modernization.

Children who finish their post primary education can hardly name a significant number of indigenous plants of Lesotho – let alone describe their uses. The relationship between people and animals has changed. Animals have lost the respect they enjoyed in prehistoric times, and this has led to extinction of many wild animal species in Lesotho.

However, there is some commitment to preserve indigenous knowledge through statutory laws and education policy documents. Section 36 of the constitution states that:

Lesotho shall adopt policies designed to protect and enhance the natural and cultural environment for the benefit of both present and future generations and shall endeavour to assure all citizens a sound and safe environment adequate for their health and well-being. (The constitution of Lesotho, 1993: 45).

This section of the constitution reflects policy intention to incorporate culture into environment related activities whether educational or developmental. Thus the constitution could be used to legitimise the inclusion of IK in the formal school learning. National aims of Basic Education for Lesotho also take cognisance of the importance of culture in the formal school system. One of the aims of Basic Education for Lesotho is, *to help learners with an understanding of their culture and to enhance cross-cultural awareness, as well as to arouse aesthetic awareness* (Kingdom of Lesotho, 1994:15). The same document further recommends that the potential role of indigenous institutions such as *lebollo* (initiation school) in education and socialization of the society should be investigated.

Another support for incorporation of IK into formal learning in Lesotho is evident in the Environment Act 2001. Section 67(vi) states that *the Authority shall issue guidelines for integrating traditional knowledge for the conservation of biological diversity with mainstream scientific knowledge*. This act clearly reflects government's commitment to including IK as part of conservation of biodiversity *in situ*.

Based on these policy statements about the inclusion of indigenous knowledge in formal education and development activities, I observe that integrating IK into formal school learning is now due – if not overdue. In the previous sections of this paper, it has been noted that IK is passed through oral tradition in the form of beliefs, taboos and stories told by elderly people in the community. This oral tradition could be used as an approach to transmitting indigenous knowledge among school children. Teachers can assign students to work on collecting poems, legends, proverbs and myths that relate to environmental protection.

Another approach for promoting IK through formal school learning is direct observation of indigenous plants and wild animals. Students can

carry out ecological studies involving inventories of indigenous plants and animals found in their local areas. This approach can help promote aesthetic feeling and appreciation of the fact that humans are not separate from the land, animals, water, air and each other (Matthew, 1999). In this way, the learning perspective of *education in the environment*, as described by Fien (1993B) can be enhanced and thus the approach would encourage learners to be more willing to take action for the environment.

While IK has a role to play in ESD, there are challenges facing its implementation. Some of the traditional belief systems described in this paper appear to be scientifically irrational. For example, the association of lightning with certain scrubs or birds may not make sense to the learners, who are nowadays taught to think scientifically. A careful selection and appropriation of IK will be necessary as curriculum developers and teachers recontextualise it at macro and micro levels of pedagogic discourses.

Secondly, the fact that IK is not universally applicable as it is based on belief systems characterising a particular community or society, presents a challenge for globalisation of knowledge. As has already been mentioned ESD provides a forum for people from all walks of life to share ideas and experiences (Tilbury, 2005). Therefore implementation of IK would require an interpretist worldview rather than a positivist orientation, which assumes that there is an objective knowledge. It is worth noting that the latter currently dominates curriculum discourse in Lesotho.

Another challenge is associated with curriculum organization in Lesotho, which is characterised by what Bernstein (1990) would call a "strong classification". The national curriculum is highly differentiated and separated into traditional subjects. Incorporating IK into this strongly classified curriculum would require epistemological and political empowerment of teachers so that they can disturb subject boundaries and draw content from other subjects and everyday community knowledge that the learners are familiar with.

Finally, the limitations of a centralised education system in Lesotho should not, however, be ignored. As long as the school curriculum is centrally produced, and as long as classroom-teaching is examination-oriented, teachers will face serious challenges in incorporating local knowledge. In this centralised education system teachers have to teach a homogeneous curriculum, and are less empowered to make their own curriculum decisions.

Conclusion

This paper has outlined beliefs, myths and traditional practices, which Basotho communities used to transmit environmental conservation

education. The Basotho traditional education followed behaviourist approaches, which are based on the positivist view that there is a linear relationship between environmental knowledge, attitude and behaviour. Although this approach may be regarded inadequate for promoting action-oriented learning through critical thinking, it is nevertheless a basis for effective environmental management strategy.

Based on the findings of this study, it would seem that in the Basotho culture, environmental conservation code was fostered through belief and taboo systems that characterised the society. As has been mentioned earlier in this paper, education for children was not based on modern scientific reasoning since their environmental behaviour was controlled through myths and taboo systems. Seen from the perspective of political liberalism (Postma, 2002; Bell, 2004), this type of education may be regarded as indoctrination and undemocratic. The potential effect of myths and beliefs is that environmental behaviour changes as a result of ideological subsystems of culture rather than giving the children themselves the right to make a free choice based on scientific understanding of environmental issues (Postma, 2002; Bell, 2004).

Perhaps, there were valid reasons for this indigenous educational practice. Cognitive development theories recommend that knowledge should be organised according to the developmental age of children, as they may not be ready to grasp certain concepts while they are still young. Based on this principle, it could be argued that the use of Basotho environmental IK is consistent with the cognitive learning theories, which hitherto have influenced contemporary formal education. As Jean Piaget observed about other children in different contexts, Basotho were possibly aware that children would not comprehend complex environmental issues because of their low mental age and yet their actions had impact on the environment. Or it could be that myths and taboo systems were used for the fear that children would want to experiment if the truth was told.

Shaping people's environmental behaviour through IK therefore, would ensure an adoption of lifestyles that could, in the long run, promote sustainable use of resources. The Indigenous knowledge systems, outlined in this paper influenced the consumption behaviour of resources among Basotho traditional communities. They engaged in sustainable hunting behaviour and avoided important plant species when collecting firewood. The Indigenous Knowledge systems thus have the potential to promote conservation of faunal and floral biodiversity and could be used to encourage a vision of a sustainable future.

The forms of IK discussed in this paper, should be further researched and selectively documented for application in the formal school learning as part of education for sustainable development. The findings of

this study and research conducted by Mokuku and Mokuku (2003) on the role of IK in biodiversity conservation could provide a baseline data for integration of IK into formal education. Finally, for a meaningful integration of IKS into formal education, traditionally knowledgeable people should be involved in the teaching of environmentally related issues since they are custodians of traditional knowledge.

References

- Asabere-Ameyaw, A. & Anamuah-Mensah, J. (2003) *Taboo systems and ritual- a Simple technology for resource management: the case of the Dagaaba and Manpruis of Ghana*.
- Ashton, H. (1959) *The Basuto*. London : Oxford University
- Bell, D.R. (2004) Greeting green citizens? Political liberalism and environmental education. *Journal of philosophy of education*, 38 (1)
- Bernstein, B. (1990) *Pedagogy, symbolic control and identity: Theory, research, critique*. London: Routledge.
- Chakela, Q.(1999) *The state of environment in Lesotho*. Maseru: National Environment Secretariat Editorial (1998). *Indigenous knowledge and development monitor editorial*, 3(1)
- Editorial (1998) Indigenous Knowledge and Development Monitor*, 3 (1)
- Fien, J. (1993A) Ideology critique and environmental education. Education for the environment: Critical curriculum theorising and environmental education. Brisbane: Deakin University
- Fien, J. (1993B) Education for sustainable living: an international perspective on environmental education. *Southern African journal of environmental education*.
- Government of Lesotho (1993) Constitution of Lesotho. Maseru: Government of Lesotho
- IIRR (1996) Recording and using indigenous knowledge: A manual. Silang: International Institute of Rural Reconstruction
- Ivy, T. G; C. K. Lee and G. K. Chuan (1998) A survey of environmental knowledge, attitude and behaviour of students in Singapore. *International research in geographical and environmental education*, 7, 181-202.
- Laws of Lerotholi 1998 edition
- Lesotho Government (1998) Laws of Lerotholi. Maseru : Lesotho Government
- Lesotho Government (2001) Environmental Act. Maseru: National Environment Secretariat.
- Maembe T.A. (2001) Environmental education as tool for dissemination of appropriate indigenous environmental conservation knowledge: Tanzanian Experience. A paper presented at the 19th EEASA International Conference, Maseru, Lesotho

- Mahammad, H.E. (1998) *Indigenous knowledge: Sustainability and empowerment*. Indigenous Knowledge Monitor, 6 (3)
- Matšela, F.Z.A. and Moletsane, R.I.M. (1988) *'Mantlatilane*. Morija : Morija Printing Works
- Matthew, R. (1999) *Educating today's youth in indigenous ecological knowledge: New paths for traditional ways*, UNESCO world conference on Science, Budapest. (online) www.unesco.org/education/tlsf/theme
- May, E. D. (2000) The indigenous forests of Lesotho: Their former occurrence, The current distribution of groves and patches of wild indigenous trees and shrubs and their management options. Morija: Morija Printing Works.
- Mokuku, T. & Mokuku, C. (2003) The role of indigenous knowledge in biodiversity conservation in the Lesotho Highlands: Exploring indigenous epistemology. *Southern African journal of environmental education*. 21, 37-49.
- Moorosi-Molapo J.M. (1998) The Basotho indigenous education and educational Changes in Lesotho. A paper presented at the 10th World Congress of Comparative Education, University of Cape Town, South Africa.
- Nwonwu, F. O. C. (2001) *The role of environmental education in effective application of traditional knowledge systems for sustainable development*. A paper presented at the 19th EEASA International Conference, Maseru, Lesotho.
- Postma, D.W. (2002) Taking the future seriously: On the inadequacies of the Framework of liberalism for environmental education. *Journal of Philosophy of education*, 36(1)
- Raselimo, G.M. (2003) Assessment of environmental knowledge, attitude and behaviour of geography education students at the National University of Lesotho. A paper presented at the International Geographical Union Conference London, United Kingdom.
- Seeland, K. (ed.) (1997) *Nature is culture: indigenous knowledge and socio-cultural aspects of trees and forests in non-European cultures*. London: Intermediate Technology.
- The constitution of Lesotho, 1993
- The Kingdom of Lesotho (1994) *Basic Education*. Maseru: Ministry of Education.
- Tilbury, D. (2005) *The UN Decade of Education for Sustainable Development (2005 – 2014). The challenge for the next ten years*. [Ecos](http://www.ecos.org).
- UNEP (1999) *Cultural and spiritual values of biodiversity*. London : Intermediate Technology.
- Yeung, S.P. (2002) Teaching approaches and development of responsible environmental behaviour: the case of Hong Kong. *Ethics, Place and environment*, 5(3), 239-269.



This work is licensed under a
Creative Commons
Attribution – NonCommercial - NoDerivs 3.0 License.

To view a copy of the license please see:
<http://creativecommons.org/licenses/by-nc-nd/3.0/>

This is a download from the BLDS Digital Library on OpenDocs
<http://opendocs.ids.ac.uk/opendocs/>