

Facilitating Response to Climate Change through Social Learning in Rural Communities

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ABSTRACT

Climate change has become a reality in most parts of the African continent. Its impact is undisputable, especially amongst vulnerable communities such as the rural poor who are dependent on subsistence agricultural practices. These communities share experiences on adaptation and mitigation strategies to cope with climate change through social learning. Government policies and subsidies are complimenting local efforts to cope with climatic conditions threatening annual supply of rural livelihoods. This paper is based on research findings from rural communities in the eastern part of Botswana. It has emerged from the research evidence that rainfall pattern and amount is increasingly varied and unreliable in the area. This has an impact on agricultural production and wild products that are sources of livelihoods for the majority of the community in the area. Through a community based organization formed by women, experiences, information and skills are shared formally and informally to improve people's adaptation and coping strategies to harsh climatic related stressors. To facilitate a more pro-active response to climate change and variability a national climate resilience strategy would be a viable tool complimenting the existing policies and traditional knowledge systems.

Keywords: Social learning, climate change, community of practitioners, natural products, resilience

INTRODUCTION

The impact of climate change and variability in rural sub-Saharan Africa where the majority of the people depend on the amount of seasonal rainfall is undisputable. The need for numerous innovations in social learning and human capacity development for climate change adaptation is more than before. However, there is a poor understanding of how to translate these innovations into curriculum policy indicators and educational policy change, and how to mainstream Education for Sustainable Development innovations into educational policy systems. This could be facilitated by curriculum policy reorientation and effective implementation for social change. The challenges may be due to power relation in policy construction and decision making. The integration of Education for Sustainable Development (ESD).calls for policy changes and indicators necessary for innovation centered approaches to human capacity development at local level, with emphasis on sustainability. The development of national educational systems may incorporate and draw on human evidence-based approaches to natural resources management, poverty reduction, and training and public awareness systems at local and national levels to promote resources sustainability. Innovations should focus on research agendas that monitor the systemic impacts of human capital development in terms of climate change adaptation practices. This paper is based on community of practitioners in the eastern part of Botswana who are responding to climate change and variability through social learning.

CONTEXTUAL BACKGROUND

Over 70% of Botswana's population lives in the rural areas. The majority of these people are women who are pre-dominantly subsistence farmers. They derive their livelihoods from subsistence agriculture and other rural activities, but these livelihoods, like in most dry land parts of the world, are threatened by climate change. The agriculture sector's reliance on seasonal, rain-fed cultivation makes the sector particularly vulnerable to climate variability and change. Botswana is prone to droughts, which have become more frequent over the last two decades with devastating impacts on food security, health, and environmental degradation. In many rural areas, such as the Tswapong Hills, rural women are poor and depend on agriculture and natural resources for their livelihoods. Both agricultural production and natural resources products are dependent of weather and climate in Botswana.

The *climate* of Botswana is described as arid to semi-arid with rainfall ranging between 250mm and 650mm per annum. The national average rainfall is 475mm per year. Rainfall season is between October and April each year. However, rainfall is unreliable and varied. The variation is affecting both agriculture and the annual supply of the natural resources and products that women in the study depend on.

On a global scale, climate change is brought about by an increase in the concentration of greenhouse gases in the atmosphere as a result of human activity such as burning of fossil fuels, electricity generation by coal burning power stations, industrial processes, cutting down of trees and burning of savanna vegetation. The greenhouse gases in the earth's atmosphere include: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulphates (SOX), water vapor, and so on. Africa accounts for less than 10% of toxic emissions that contribute to global warming and climate change. Botswana contributes a minute percentage of the African overall toxic emissions although equally affected by the impact of global warming and climatic variations in the Southern African sub-continent.

National policies and their relevance to social learning

To encourage sustainable utilization of natural resources, the government of Botswana has initiated the formation of Community Based Organizations (CBOs) through the Community Based Natural Resources Management Policy (CBNRM) of 2007. The policy encourages local communities to participate in natural resources management. "It gives communities incentives to engage in conservation activities leading to sustainable development and poverty reduction" (Republic of Botswana, 2007: 2). The policy's objectives include the following:

- i. Specify land tenure and natural resources user rights, which may be devolved to communities;
- ii. Establish a framework that provides incentives for communities to manage natural resources in a sustainable manner;
- iii. Create opportunities for community participation in natural resources management;
- iv. Promote conservation and CBNRM strategies that are based on sound scientific principles and practices (Republic of Botswana, 2007: 5).

The concept of CBNRM embraces the integration of indigenous knowledge and management systems for optimum benefits. "Natural resources gain value through use, beneficiation, and commercialization" (Republic of Botswana 2007: 10). Through the CBNRM processes social learning opportunities exist as communities are mobilized to manage resources, trained in natural resources management and encouraged to incorporate traditional knowledge systems to promote sustainable development. It is through these interactions that social

learning to cope with climate change and variability could be integrated. This could be enhanced by policy change informed by climate change awareness among policy makers and proper understanding by policy implementers. Policy changes should follow a systemic approach that would ensure appropriate response from the communities who are substantially affected by the impact of climate change.

The other policy documents linked to natural resources management and poverty reduction are the National Tourism Policy (Republic of Botswana, 1996). , the Eco-tourism Strategy (Republic of Botswana, 2002).and the National Poverty Reduction Strategy (Republic of Botswana, 2007). . The National Poverty Reduction Strategy guides and facilitates the coordination of various poverty related efforts by the various sectors. It encompasses cost-effective interventions and time-bound objectives and targets, which are gender and health sensitive, environmentally friendly, and sustainable. It is integrated into District and National Development Plans. The policies are marketed through public awareness forum in the villages and tourism potential settlements. In publicizing these policies and implementing them, there are possibilities of social learning and response to climate change mitigation strategies. However, there is great influence from the officials as to what goes into policy texts and the interpretation of the texts at implementation stages.

Poverty continues to be one of the major challenges facing sub-Saharan African countries including Botswana. This could compromise climate change mitigation strategies. According to Vision 2016, “Botswana will have eradicated absolute poverty by the year 2016 so that no part of the country will have people living with incomes below the national poverty datum line” (Republic of Botswana, 2003: 63).. The Botswana Government has managed to reduce poverty from 47 percent of the population in 1993/94 to about 30 percent by 2010. Twenty-two percent (22%).of this figure (30%). experience food shortages (Makgabenyana, 2010). .

Kgetsiya Tsie (KYT). Community Trust

In response to national policies, a group of women in twenty-six villages in the Tswapong region of Eastern Botswana have formed a community based Trust known as *K getsiya Tsie(KyT)*. , to sustainably manage natural resources within their area. Its purpose is to assist rural women to empower themselves, both socially and economically by more effectively organising their entrepreneurial activities based on sustainable management of natural resources (*KyT*, 2009). . *KyT* was established from bottom up in 1997. The trust works with over 1200 women in the Tswapong region to produce ten business products from natural resources of their area. They started small, with a five person resource user groups in nine villages, to twenty-six villages. They moved on to federate their groups into thirty-two local Village Centres.

In empowering themselves, the *KyT* members educate each other through formal workshops, meetings and informal knowledge sharing sessions. Workshops are organised specifically for particular skill sharing like jam and oil making using natural products from within their surroundings. They also share knowledge on identifying, harvesting/collecting and on uses of natural resources. The knowledge and skills shared had existed for years and always passed from generation to generation. This traditional knowledge is innovated by the introduction of modern scientific knowledge and sustainable ways of using the resources particularly as climate variability impact on their natural resources annual supply.

CONCEPTUAL FRAMEWORK

Sustainable development cannot work properly in a milieu of poverty and deprivation. Poverty is not only the cause of much of the environmental degradation found in many

southern countries, but is also a root cause of ill-health, lower life expectancies, and incapability to acquire proper education (Segovia and Galang, 2002:194).

The concept of *sustainable development* is mainly associated with the World Commission on Environment and Development (WCED). report of 1987 entitled *Our Common Future*. Its initial aim of promoting practical ways of addressing environmental and developmental challenges of the world is compounded by the increasing impact of climate change and variability particularly in Africa. This calls for the reorientation of efforts examining the critical environment and developmental issues to formulate realistic proposals for dealing with climate change to promote sustainability. The challenge to education systems is to raise public awareness, understanding, and commitment to sustainable development in sub-Saharan Africa. The eight key issues identified by *Our Common Future* (namely: population and human resources, food security, the urban challenge, energy, industry, species and ecosystems, managing the commons and conflict and environmental degradation). are compounded by climate change and variability.

The current climate change discourse could be strengthened through policy initiatives to include what Hattingh (2004). calls a ‘stronger’ model of sustainable development (illustrated in fig. 2 below). which emphasizes ecological, socio-political and economic spheres without focusing on a single sphere.

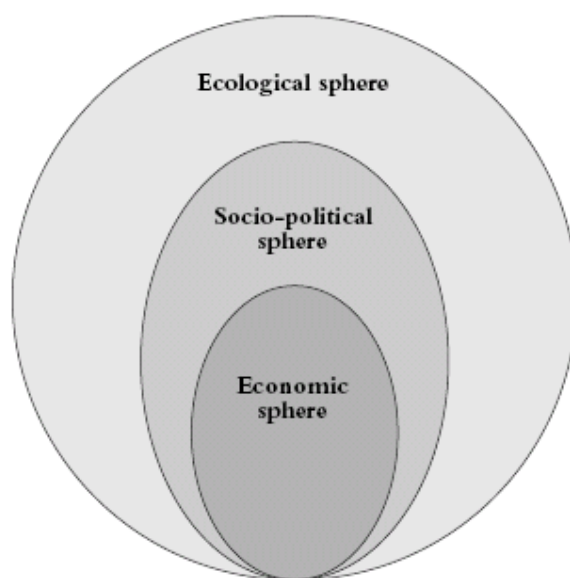


Figure 2: Hattingh's alternative model of sustainable development

Source: Hattingh, 2004

Lotz-Sisitka (2009: 85). , posits that:

In this sense, adaptation and sustainability practices (as practiced now). can be seen as ‘short term’ measures that are required to deal with the consequences of climate change, since absencing the causes of climate change is a time-lagged process in which consequences manifest while the causes remain unchecked. Transformative praxis, in the context of adaptation practices and climate change, can only really be achieved when there is no further need for adaptation or sustainability practices in response to climate change. Ironically, for this there is a need for ongoing adaptation and sustainability practices at various levels and scales.

Agency is emerging through social interaction to make structures more productive and empowering to promote adaptation and sustainability practices. *KyT* members as a community of practitioners collectively act to sustain the supply of natural resources and through formal and informal training empower individuals to act independently to promote sustainability in the face of climate change and variability. Through the returns from sales of natural products and appreciation of their indigenous knowledge and normalized new ideas people develop capabilities “to value their new doings and beings that make up the adaptation and/or sustainability practices” (Lotz-Sisitka 2009: 87). . *KyT* members individually and collectively’ had developed the ability to define their own goals and act upon them. Kabeer (1999: 438). is cited by Lotz-Sisitka, (2009: 87). saying:

Agency is about more than observable action; it also encompasses the meanings, motivation and purpose which individuals bring to their activity, their sense of agency, or ‘the power within’. While agency tends to be operationalised as ‘decision-making’ in the social science literature, it can take a number of other forms. It can take a form of bargaining and negotiation, deception and manipulation, subversion and resistance, as well as more intangible, cognitive processes of reflection and analysis. It can be exercised by individuals as well as by collectivities.

Through social interaction communities of practitioners could exercise their power within their own context as a response to policy changes and the impact of climate change and variability. They can resist some of the policy initiatives that are meant to encourage adaptation if in their understanding their immediate needs are not addressed. Change oriented practices or innovations should be promoted through social interaction such as the one practiced by *KyT*. A systemic approach to innovation would facilitate a process of capability development and motivate people to participate in change oriented practices in the context of climate change and sustainable development.

Social learning involves gaining knowledge and understanding through experiences or interactions. This is a typical situation that takes place in rural African societies. It refers to less formal ways in which communities interact and in the process share knowledge either about farming, hunting, gathering and or uses of natural resources. “...knowledge is socially constructed, and built up from organising or reorienting categories and social facts”(Holton, 2007:158). .Learning occurs as people or community of practitioners, informally and formally meet regularly. It is through these regular interactions that knowledge about climate change could be gained and new experiences shared. Practitioners/educators could utilise such informal interaction to enhance an understanding about climate change and variability. The bases of policy change to promote sustainability should be the knowledge generated through social interaction.

METHODOLOGY

Data were generated through semi-structured interviews with women belonging to *KyT*, document analysis, observations and through meetings attended by the researcher and research assistants. The semi-structured interviews were conducted to profile the organisation, establish members’ understanding of its objectives, climate change and its impact, and to investigate different ways of learning processes within the organization. The documents examined included the policy document and project documents. These were analysed to establish the bases of decision making and implementation processes. They were also examined to establish the source of power for projects implementation, and the enabling and constraining context in the integration of climate change in social learning processes. In addition, marketing information leaflets were other sources of data to establish the markets

and marketed products. Observations were conducted at different research sites including areas where the raw material are obtained, venues for workshops and seminars and at the factory where processing and packaging of products are done. Observations were to establish social learning processes and how the activities contribute to social learning and poverty reduction in the face of climate change.

FINDINGS AND DISCUSSIONS

Through interaction with community groups, individuals and documents, it was established that *KyT* is a community of practitioners (COP). based on the CBNRM policy to reduce poverty. This confirms Wenger's (1998). idea that COP are organised around what matters to the members of the community. It emerged from the research that what women shared were concerns for their economic status and access to loans, and market for their produce. This was also key to their identity, knowledge generation, learning interactions and hopes for a better future as members of a community of practice. Through formal and informal interactions, *KyT* members as a COP share new knowledge and innovations which benefits them.

Natural resources that are regarded as communal resources are the focus for regular interaction, particularly by women. It also emerged that there are strong social learning activities within groups exploiting communal resources as means of livelihood. Through interaction women feel empowered to make decisions and to improve their understanding of resources use and entrepreneurial skills. Some of the benefits of regular interaction include the following:

- i. Development of new responses to health risks
- ii. Development and production of "green" products
- iii. Women are engaged in a number of activities to reduce the impact of poverty, reduce natural resources depletion, and to promote public awareness of sustainable resources use
- iv. That women depend on both local and international markets for their produce
- v. That there is re-appropriation of indigenous knowledge and traditional resilience practices. The practices are acquired through social learning processes within communities of practice. The social learning practices build capacity among local COP for adaptation and resilience
- vi. There is an emergence of the "development of collective agency practices that promote new social synergies amongst people across" social levels (Lotz- Sisitka 2009: 82).
- vii. Normalized sustainability ethics and practices - both new regimes of truth (Foucault, 1979). and indigenous knowledge practices.
- viii. Normalized sustainability practices are often in conflict with status quo e.g. poverty.

These benefits strengthen regular social interactions and enhance social learning amongst people sharing the same interest and values.

Learning/Knowledge Sharing

Through their informal and formal interaction as well as sharing both indigenous knowledge (IK).and new knowledge on the use of natural resources, it becomes clear that *KyT*women are a COP. They learn in different ways, through intergenerational processes. Contextual profiling indicated that the majority of practitioner's knowledge about different veld (wild).

products and their uses had been passed down through generations. One practitioner noted that “I was taught by my parents. One of them was a traditional doctor and taught me some medicinal plants and herbs. I now teach my children about these veld products”. The respondent claimed that she was not a herbalist herself but would prescribe herbs to those who informally consulted her. Interestingly, children learnt about the resources from their close interaction with their parents and relatives. In addition, some learnt from their peers informally.

However, KyT COP now admits young women who may have missed the opportunity to learn about the uses of natural resources from their parents through informal and formal workshops. The resource persons are women themselves. In matters pertaining to uses of modern technology, business skills, policy and policy implementation, the resource persons are outsourced. Following the formal workshops, women teach each other at their respective centers. They meet at least once a month to share experiences, new ideas and to solve some problems.

Climate Change, Uncertainties and Sustainability

It is clear that KyT COP understood climate change and variability within their context. It emerged that they depend on local knowledge to predict and cope with climate variability. It was also evident that they knew indigenous ways of dealing with climate variability and how to sustain supplies of indigenous natural resources. The COP often come together to discuss sustainable ways of dealing with climate change and its impact on their communal resources. They share indigenous conservation practices and belief systems that promoted sustainable supply of the resources. Interestingly they knew which resources required minimum rainfall, those that could survive droughts and which ones were more vulnerable to little or no rainfall. There were often traditional belief systems that protected useful plants and herbs that they depended on. It emerged that women are aware of the causes of unsustainable ways of collecting and gathering of natural products. They blame this on outsiders, who are not members of the local community, who come to gather or collect the resources solely for commercial purposes. These people often do not respect local knowledge and beliefs relating to harvesting of natural products. Some of them do not even know that such traditional ways of controlling the collection and harvesting of natural resources exist. Even during years of drought and uncertainty, some people still harvest the resources as they need money for different reasons disregarding traditional practices that are often observed to conserve the resources.

The CBNRM Policy And Sustainability

Although the CBNRM policy promotes local people and empowerment through sustainable use of natural resources, it does not always protect the locals from people who often come from outside areas to use the same resources even where community based organisations (CBOs). exists. Natural resources are protected by fauna and flora conservation acts. The Forest Act (1968).in particular does not prohibit subsistence use of the resources such as plants and herbs. However, herbalists and traditional doctors are required to obtain practicing licenses but not regulated to use indigenous medicinal plants and herbs. Individuals are also not restricted from using these natural resources. Therefore, it becomes difficult for the CBOs particularly those without designated land of operation to control access to herbal and medicinal plants at any time to encourage sustainability. People, even those without proper and tested indigenous knowledge are free to harvest resources for sale throughout the year. They do this regardless of drought and climate change and variability. They often overharvest the resources due to demand in populated areas that are often far from where the resources are obtained.

It emerged from local women that a policy to regulate access to these resources is necessary. They feel people should observe local traditions in harvesting the resources, particularly during drought years and periods of uncertainty. In terms of power relations, although it is not clear, it emerged that there is too much reliance on *KyT* headquarters (HQ). for sourcing market, providing guidance, resources such as machines for processing, securing loans and grants as well as influencing policy decisions and formulation that would protect and regulate access to natural resources.

Stronger environmental sustainability policies should be put in place to ensure long term ecological sustainability. The policy texts generation process should take into account the resources to be sustained for generations to come. It should also take into consideration the socio-ecological factors that exist and those that had sustained the resources for years. Implementation of such environmental policies would ensure sustained biodiversity for the known and the yet to be known uses. Already there is local ecological knowledge that is not fully tapped to respond to climate change and variability in Africa. As noted by Akpezi Ogbuigwe,

Ik, a significant resource that could contribute to climate change mitigation strategies at community levels. IK about environmental adaptation should be integrated into environmental education in Africa, another readily available tool for closing the knowledge gap existing among the African people (Ogbuigwe, 2009: 24). .

Local women possess local ecological knowledge that could be utilized for sustenance of natural resources and their products. This knowledge has been passed from generation to generation through social learning and has proved to be valuable in the Eastern part of Botswana where local women still practice it to maintain biodiversity.

CONCLUSION

In this paper, the authors have highlighted both contextual and conceptual frameworks in the context of social learning and climate change to promote sustainability in natural resources management. They highlighted different ways of data generation and analysis. They provided an analysis of different ways of learning and knowledge sharing in a community of practitioners in the eastern part of Botswana, conception of climate variability and change, coping with climate change impact, climate change and sustainability, as well as policy implications in the face of climate change and sustainability. Social learning in the face of climate change and variability could be a viable tool to promote resilience, adaptation and mitigation strategies to reduce the impact of climate change amongst rural communities.

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