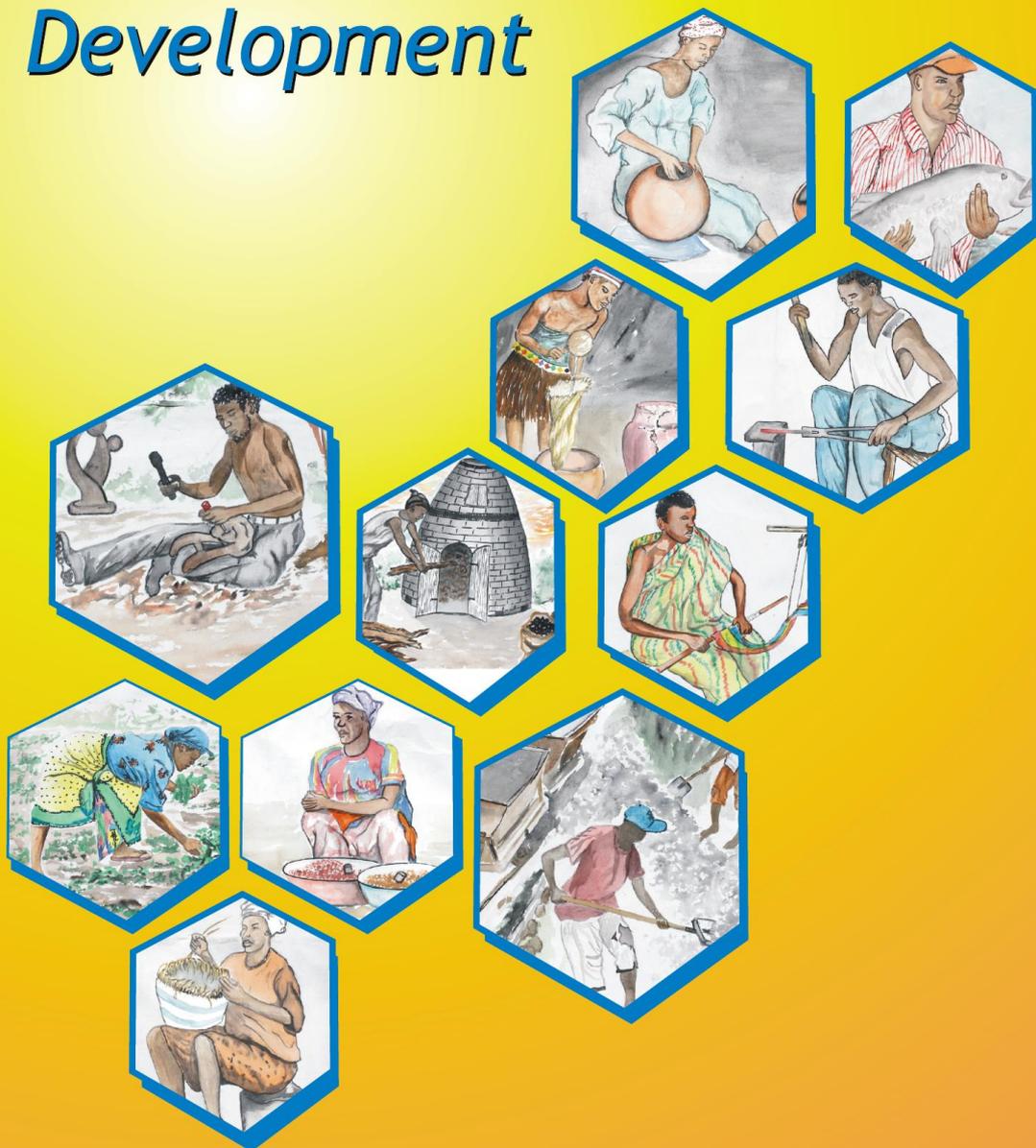


AFRICAN

*Indigenous Knowledge
Systems & Sustainable
Development*



*African Indigenous Knowledge Systems
and Sustainable Development:
Challenges and Prospects*

Edited by
Johannes A. Smit &
Mogomme A. Masoga

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Challenges and Prospects*

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Preface



Mpilo Pearl Sithole

This book is an important contribution to social science, specifically to the field of history and politics of knowledge production. It also importantly addresses a number of specialised professional fields pinpointing critical perspectives on the contributions of African indigenous knowledge to the knowledge terrain. Its strength lies in that it crucially deals with the politics of knowledge generation.

Colonialism and its subsequent modern forms (such as imperialism, apartheid in South Africa, and economic globalisation) have not been the only tools of unfair competition and the sustaining of unhealthy social inequalities. The maintenance of unequal knowledge relationships, a situation in which careful censoring of formal knowledge takes place is just as important. The continuation, of the hegemony of knowledge produced in and for the Western world serves to not only project a powerful image of the Northern hemisphere over the rest of the World, but also monopolises science. In effect, this position and its accompanying practices marginalise and in fact downgrade the role of indigenous knowledge in scientific contributions. In this sense, it is a continuation of colonising knowledge and practices.

Contrary to this position and its practices, we need to acknowledge that “Indigenous knowledges”, is actually the basis of all scholarship. How African indigenous knowledge could develop in tandem with modernisation during the periods of colonisation and apartheid, were stifled and positively restricted by colonisation, underdevelopment and apartheid. It was marginalised and codified as *a priori* or primordial knowledge with its own limitations and regarded as not dynamic and relevant. The heydays of the critique of “the invention of tradition” also confused the fact that tradition itself is invented with the façade that “Africa was invented” by its colonisers. Externalising colonising forces represented and invented a subdued and static

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Africa instead of revealing the dynamic, developmental and life-sustaining traditions and knowledges. To this day African indigenous knowledge is made to be apologetic for its existence, while it constitutes the cultural substratum for all Africans. The significance of a book such as this is that it demonstrates this fact – the substance of African indigenous knowledge – insists that such knowledge constitutes the foundations of knowledge for Africans, that African indigenous knowledge constitutes an indispensable component of all knowledge and skills generated and imparted in Africa. It courageously outlines and maps the potential of such an approach in the knowledge domain and outlines future trends and possibilities.

It is then evident that this book breaks through the restrictions of existing codifications of African indigenous knowledge from outside. While demonstrating that there is indeed an African indigenous knowledge and that it is multifaceted and dynamic, it also hints by way of many loops in the articles, at the need for on-going and further research. Such research will continue to break through “system exclusionist” perceptions. The findings and future research trends suggested attest to the fact that local knowledge has already influenced science, and that there are multiple needs for the appropriate education and training of students to fulfil their roles in our developmental state in a wide variety of careers and over a wide front of positions in governance and the private sector.

The significance of indigenous knowledge also needs to impact on people’s choices of methodologies for specific research projects. Researchers engage people with specific understandings and needs in context specific social situations. Scientific projects and researchers should employ reflexive vigilance with regard to their censoring of indigenous knowledge – as if it does not exist, and as if it does not constitute the primary cultural formations of people researched in specific circumstances. Researchers should rather overtly acknowledge context and local knowledge. It should become a primary feature of research-based knowledge generation in, with and by local communities. It is such work that will move scholarship towards useful and relevant knowledge relationships, dismantle traditional scientific hegemonies, and establish useful conversations across the diverse regions in Africa and around the globe.

Indications arising from the work of the IKS Centre of Excellence suggest that we need to start with breaking the cycle of elitism into which knowledge generation is trapped. The silenced knowledges and women’s voices need to be heard and brought to the centre of curriculum development

and education and training. We need more locally produced scholarship, with an eye to educating and training graduates for our own local markets. Graduates need to serve real-life local people not some imagined community in the Western world. Similarly, curricula for professional vocations and occupations are ethically bound to acknowledge the local base for scientific theorisation and knowledge generation. The continuation of research presented in *African Indigenous Knowledge Systems and Sustainable Development: Challenges and Prospects* will liberate humanity from the conundrum of unequal knowledge relationships which are the basis of unequal socio-economic development.

Durban

March 2012

Introduction



Johannes A. Smit
Mogomme A. Masoga

This book brings together a number of chapters based on research conducted at The IKS Centre of Excellence, Mafikeng campus, of the University of Northwest. It is a centre in partnership of the universities of North-West, Limpopo and Venda and has a track record of undergraduate and postgraduate teaching and research, networking, and community engagements within and outside South Africa. One of its main purposes is to facilitate and conduct research and training in indigenous knowledge systems. A central component of the prospects to achieve this overarching goal is to conduct research in inter- and multi-disciplinary ways. Its main focus areas are within the overlapping fields of agriculture, African languages and literature, biodiversity, law, education, human and animal health, food security, natural resource management, climate change and renewable energy. This broad-based IK knowledge focus contributes towards the development of IK knowledge in the public domain and also enhances the employability of graduates in careers that serve the universities' feeder communities. Against this background, *African Indigenous Knowledge Systems and Sustainable Development: Challenges and Prospects* provides a sample and report of some of the research at the Centre as well as brings together a body of scholarship and appropriate references to seminal sources that could significantly serve as resource for the further development of research and critical thinking in all the relevant scholarly fields addressed. The book is divided into three sections as follows:

- Indigenous Knowledge, Ecology and Traditional Medicine;
 - Indigenous Knowledge, Culture, Policy, Education and Media; and
 - Indigenous Knowledge, Agriculture, Economic Enterprises and ICT.
-

In this first chapter, we wish to briefly introduce the book and position it and the various contributions in the broader debate. It also provides brief introductions to the different chapters.

Indigenous Knowledge, Ecology and Traditional Medicine

The main focus of the first section is to bring to the fore the significance of indigenous knowledge in the broader context of knowledge production in the Humanities and Social Sciences.

Mogomme A. Masoga and Hassan O. Kaya's contribution in the first chapter focuses on history and examines sources of African indigenous ecology control and sustainable community livelihood in Southern African History. For them, the end of apartheid and political independence also signalled a change in the historiography of the region and the African continent as a whole. Rather than seeing ourselves as an extension of Europe and a continuation of European history, South Africans entered the quest for Africa's Renaissance in 1994. The focus is on the affirmation of the African past, and an assertive drawing on indigenous knowledge systems and resources for inspiration to create the foundations of sustainable livelihoods. The chapter values the nature of pre-colonial African communities in the region, especially their ability to manage and control their own ecosystems. Drawing on existing scholarship, they bring to the fore a variety of forms of prosperity that Africans experienced in the pre-colonial era. Following this sample, they suggest further research aimed at the restoration of the historical achievements of Africans in the region. This developing body of knowledge could then systematically and in a coordinated fashion, feed into the educational system.

In chapter two, Kgoroadira Kenalemang and Hassan O. Kaya uses a study conducted on the Batswana indigenous natural disaster management systems in the North-West Province, South Africa, to demonstrate the rich knowledge which African indigenous communities have in natural disaster management. Batswana constitute the major African indigenous ethnic group in the North-West Province, and their scrutiny and observation of the behaviour of various natural phenomena such as animals, births, plants, insects, etc. serve as the main source of information for detecting early warning indicators of looming natural disasters. The current challenge is that much of this indigenous knowledge is not documented and hence not known

to the public. It stands in danger of being lost as the older generations who are the custodians of this knowledge, pass away. The study recommends further research on indigenous natural disaster management systems among the various Batswana and other ethnic groups in South Africa, as a contribution to the search for sustainable solutions for the lessening of climate change; that data banks and networks on this knowledge be established for sharing experiences; that the knowledge be incorporated into development policies and taught in schools; that efforts be made to integrate indigenous with modern knowledge and technological systems for sustainable development and community livelihood; and the development and activation of appropriate legal and policy frameworks to protect the intellectual property rights of community-based knowledge systems.

Indigenous water management in arid areas is the focus of the next chapter by Puleng Maake and Hassan O. Kaya. Using the Batswana indigenous water management systems in the arid environment of the North-West province as a case study, the chapter demonstrates that African indigenous communities have for centuries developed indigenous practical ways for managing their community water systems. These indigenous water management systems had a number of advantages: the increase of the productivity of agricultural land by increasing yields and reducing the risk of crop failure; the reforestation of the countryside, hence the fight against desertification and mitigation of climate change. Relatively cheap to implement, these systems derive from IK and are viable alternatives in areas where irrigation water is limited or too costly. They save energy and maintenance costs compared to pumping water and decrease the use of other valuable water sources like groundwater. The study suggests that as part of interfacing modern and indigenous water management systems, Remote Sensing and Geographical Information Systems could be used to help in determining suitable areas for water harvesting technologies. Developmental and research policy strategies on water management in African local communities should focus on promoting and supporting these community-based water management systems because they are accessible and affordable, hence sustainable.

The fourth chapter, “Batswana Indigenous Knowledge of Medicinal and Food Plant Uses for Sustainable Community Livelihood” is based on a participatory study which examined Batswana indigenous knowledge of plant species for medicinal and food uses. Collins Ateba, Hassan O. Kaya,

Fanti S. Pitso and Valery Ferim show that the Batswana knowledge holders had a rich indigenous knowledge about the plant species diversity of their environment including community uses of the plant species. They found that the sustainable utilization of these indigenous natural resources is being governed by certain socio-cultural protocols which include the veneration of ancestors. The study recommends further research including validation of the already documented IK of the bio-diversity; identification of the actual location of the documented indigenous plant species in order to develop conservation mechanisms; promotion of this knowledge by incorporating it into the school curriculum; and the developing of mechanisms to protect this knowledge and plant species from exploitation by outsiders.

In their chapter on “Healer-Patient Relationship in the Bakgatla-Ba-Kgafela Indigenous Healing Systems”, Irene Ramoabi and Emile Matike draw on a case study which examined healer-patient relationships in the Bakgatla-Ba-Kgafela indigenous healing system in South Africa. The Bakgatla-Ba-Kgafela is one of the Batswana ethnic groups in the North-West Province of South Africa. It was found that the majority of the respondent community members consulted traditional healers. They indicated that qualities such as trust, respect and confidentiality constitute essential social elements in patient-healer relationships. Healers should maintain the dignity of their patients. However, there was an acknowledgment that traditional healing systems had technological limitations when compared to modern scientific and technological healing systems. The following were recommended: improving the environment and mind set of the healers on issues of human rights to enhance trust and respect; promotion of collaboration between traditional and modern healing systems to enhance an understanding between the two healing systems; and the improving of the quality of health care for the patient.

Indigenous Knowledge, Culture, Policy, Education and Media

The second section researches the potential and impacts of IK on knowledge, culture, policy as well as education and the media.

In the first chapter, Munyai M. Mulinge, Hassan O. Kaya, and Motheo T. Koitsiwe study the Bookela Kgosi Heritage Site of the Bakgatla-Ba-Kgafela. The chapter is based on a participatory and situational analysis conducted on the prospects and challenges of the restoration and

conservation of the site as a heritage site of the Bakgatla-Ba-Kgafela ethnic group in the North-West Province of South Africa. The study argues that in an African indigenous spiritual and cultural context, land and associated heritage sites, play an important role in the cultural and spiritual life of an ethnic group. The land does not only contain the sacred sites of the tribe, but marks their place of revelation and provides awareness of a people's cultural identity and continuity of life by unifying the past with the present. The authors contend that the restoration and conservation of the heritage site could make it a place of education for the young and future generations. The history and activities associated with the heritage site, when well marketed, could also provide sources of employment and income generation for the surrounding communities. For instance, the study showed that the Disake community where the heritage site is located is living in poverty amidst rich cultural and natural resources that could be put to good economic, cultural and educational use, not only for them, but for the nation as a whole. The majority of the respondent community members were in favour of its restoration as a place of sacred ritual that may be used to teach the younger generation and outsiders, the history, traditions and customs of the tribe. It could also serve as a potential tourist attraction. There was also a wealth of indigenous knowledge with regard to ethno-medicinal, food and nutritional plants and their preparation and uses. This is accompanied by the community's willingness to take part in the restoration and conservation of the site. The community elders and other knowledge holders still knew the various original sections of the Bookela Kgosi. It is therefore recommended that they should be actively involved in the identification of the original sections of the sacred place for its restoration. Taking into consideration the rich history of the sacred site including the remaining cultural and biological diversity found around it, the government and other heritage agencies at all levels (local, provincial and national) should provide the necessary support and commitment for the restoration and conservation of the site.

Martin Palamuleni, Hassan O. Kaya, and Motheo T. Koitsiwe's "Community Knowledge and Perceptions of IKS and IKS Policy" argues that indigenous knowledge is an important development resource for local communities because it is knowledge that derives from and is used in African local communities. The adoption of the IKS policy by the government of South Africa in 2004 is a testimony to its importance in the development of the country. In order for the IKS policy to have support in the local

communities for its sustainable implementation, the latter need to be aware and know about it, especially its implications for their livelihood. Therefore, using a participatory pilot study conducted in the North-West Province of South Africa, the chapter discusses the knowledge and perceptions of community members towards IKS and the IKS policy. The study showed that the majority of respondents were of the view that IKS provided them with affordable and accessible sources of livelihood and helped them to promote and conserve the environment and community cultural life. Women are the most actively involved social group in IKS activities as daily lives of community households depend on them and how they articulate IK in their activities. The majority of the respondents also indicated that although they were aware of the significance of IKS in their livelihood, they had not heard of the IKS Policy. The study was an important undertaking because it contributed to the dissemination of information on the status of IKS and IKS policy in local communities. The replication of this study could help government and other stakeholders to develop appropriate interventions for promoting the IKS policy. The chapter recommends that the different IKS stakeholders including IKS practitioners should be capacitated through workshops and mass media on the significance of the IKS policy for them. This will help them to promote it in their respective areas. In order to avoid duplication of efforts, the government should facilitate the building of IKS networks and partnerships among the different stakeholders to ensure maximum utilisation of the existing resources and shared experiences. The responsible structures within and outside government at all levels should organise regular meetings to share information and plan their activities together. The role of the mass media and the educational system in this endeavour is also emphasized.

Following on the argument and findings of the immediately preceding chapter, Hassan O. Kaya and Yonah N. Seleti argue that cultural cooperation in Africa could be an important tool for sustainable development and unity because it builds on a resource which is locally based. In their “Culture, Unity and Sustainable Development in Africa: Research and Policy Challenges”, they recommend that cultural co-operation should become an integral part of the overall national development policy planning and continental research and development policy agendas. It is of paramount importance that African countries should begin cooperating with what is already there in local communities, i.e. the African indigenous knowledge

and innovation systems including the philosophies behind them and possibly the actual language used itself. A proper analysis and planning of these cultural potentialities are required if they are to be adapted to the demands of modern science and technology. It is in the light of this that African policy makers should provide, for every phase of their national development processes and projects, a statement on their cultural dimensions including the ways and means of implementing strategies that encapsulate such cultural dimensions. This approach will give all development efforts in the continent a human face, because it will recognise the diversity of human life and dignity in terms of the variety of the existing indigenous knowledge systems.

Emile Matike's "Knowledge and Perceptions of Educators and Learners towards the Incorporation of Indigenous Knowledge into the School Curriculum" is based on an investigation into the knowledge and perceptions of educators and learners towards the incorporation of IKS in the school curriculum with special reference to two high schools in Mafikeng (North-West Province, South Africa). The chapter argues that in view of the potential value of IKS for sustainable development, it is necessary to preserve and promote IKS for the benefits of future generations. Perhaps the best way to do this would be to integrate IKS into the school curriculum. The study found that the respondent educators and learners from Saint Mary's High School and Letsatsing Science High School had a positive view on IKS, but did not understand the possibility of mainstreaming IKS into all learning areas, particularly the science oriented subjects. The chapter recommends that the Department of Education in the North West Province should liaise with other stakeholders such as the National IKS Office (DST) and community knowledge holders who are directly involved in promoting and preserving indigenous knowledge to find sustainable strategies of incorporating IKS in the formal education system.

In their case study, "African IKS and the Feminization of Poverty and HIV/ Aids among the Barolong of Mafikeng", Mike R. Mojaki, Hassan O. Kaya and Lulama Qalinge argue that the promotion of African indigenous knowledge and innovation systems for poverty alleviation and sustainable community livelihood tends to overlook and marginalize the gendered nature of the Indigenous Knowledge Systems (IKS). This is due to the observation that in spite of the fact that African women in most local communities use their IKS to ensure the survival of households and communities, this contribution was not acknowledged and recognized. They were the most

affected by poverty and the scourge of HIV/Aids. The study shows that the Barolong women are involved in various indigenous knowledge-based activities for the community, yet, most of the development initiatives, especially poverty alleviation projects, are still largely geared towards men. A number of factors are discussed which contribute to the feminization of poverty and HIV/Aids among the Barolong in Mafikeng. These factors include culture; women's limited access to education; employment opportunities; credit facilities and the women's multiple roles in their households and communities at large. It is, therefore, recommended that the indigenous knowledge which women possess be taken seriously in the search for sustainable solutions to poverty alleviation and mitigation of the impacts of the scourge of HIV/Aids; and the eradication of women's unequal socio-economic status in local communities. Women's knowledge should be regarded as an important and vital component in the fight against poverty and the HIV/Aids pandemic.

Michael Vunyingah and Hassan O. Kaya's case study of "The Role of the Traditional Council in Land Dispute Adjudication in the North-West Province of Cameroon" examines the role of the traditional council in land disputes in the Big Babanki village in the North-West Province of Cameroon. As in most African local communities, traditional processes and structures are still used to resolve land and other disputes in the tribal community. These structures are popular among the local people because they are considered affordable, accessible, speedy and appropriate to the cultural values of the people, especially their use of local languages in their operations. All stakeholders in disputes are directly involved in the process and understand the cultural practices and approaches used in the proceedings. However, these traditional structures of justice and conflict resolution are characterized by gender and age group discriminations; limited capacity to deal with complex conflicts characteristic of modern times; they continue to operate independent of the state legal systems in spite of formal efforts to recognize them; and are characterized by corruption and abuse of power by rich and influential members of the community. The study recommends that the traditional councillors be supported financially, and capacitated in terms of training in modern civil, criminal and statutory legal systems, so that they are conversant with both justice systems. Councillors also need to be monitored to avoid corruption.

Focused on the “Relationship between Traditional Leadership and the Local Municipality: Challenges and Prospects for Service Delivery” Zacharia D. Monnaruri, Hassan O. Kaya and Motheo T. Koitsiwe address the challenges and prospects of the relationship between Traditional Leadership and the Local Municipality in South Africa including implications on service delivery with special reference to the Ratlou Local Municipality (RLM) in the North-West Province. The study follows a case study and participatory approach in order to get an in-depth and comprehensive understanding of the project as developed in terms of the research problem. Both qualitative and quantitative research methods were used. The study shows that the relationship between the two local governance institutions is characterised by a lack of coordination and integration of functions including overlapping – hence confusing the community members. The two local governance entities were shown to be more concerned with power struggles than service delivery to communities. The traditional leaders look at the local municipal councillors as interfering in their traditional roles and the councillors view them in turn as obstacles to socio-economic development. Corruption and power struggles lead to a failure in the mobilising of the community initiatives for sustainable development. On the basis of the findings the study recommends the establishment of a local house of traditional leadership as required by Traditional Leadership and Governance Framework Act (2003), where all matters on traditional leadership and its role in governance and service delivery could be discussed. Furthermore, the provincial government should facilitate a cooperative relationship between the two entities and ensure that channels of communication for the two be improved in accordance with the Traditional Leadership and Government Act (2003) which urges the cooperation between them to facilitate service delivery to communities.

Turning to the media, the next case study by Ahmad O. Muya, Hassan O. Kaya and Klaus-Peter Endter address the appropriateness of broadcast radio as a tool for disseminating indigenous knowledge and local community innovation systems in remote rural areas in Africa. The broadcast radio is seen by the community members to be affordable, culturally acceptable and widely accessible. A number of examples of indigenous farmer innovations from the study area which were promoted through the broadcast radio are cited. The chapter shows that various stakeholders including researchers and policy makers are increasingly learning about the importance of such

affordable and appropriate public communication systems for rural development. The authors recommend: (i) the development of policy strategies for promoting the use of broadcast radio as an appropriate tool for promoting and disseminating IK and community innovations for sustainable rural development; (ii) the creation of rural working groups to stimulate the creation of networks and partners between farmer innovators and other stakeholders; and (iii) the developing of training materials which include indigenous farmer innovations to facilitate dialogue between them and other stakeholders.

Indigenous Knowledge, Agriculture, Economic Enterprises and ICT

The third section of the book turns to agriculture and addresses a number of relevant issues.

In the first contribution, Mamolahluwa A. Mokoena, Hassan O. Kaya and Assan Buabeng examine “African Indigenous Entrepreneurial Activities among Batswana Women”. The Batswana are the predominant African ethnic group in the province and one of the major African ethnic groups in South Africa. The research revealed that Batswana women use their indigenous knowledge and local resources to engage in various income generating activities. These activities enable them to provide food security, and income for other household needs including education for their dependants. The activities also create job opportunities in the local communities and transfer of knowledge and skills from one generation to another as young people participate in these activities either as relatives or employees. Taking into consideration the scarcity of publications on this subject, the chapter makes an important contribution to this deficit. It will be useful for policy makers and development agencies as it shows the importance of promoting women’s entrepreneurship based on local knowledge systems and resources at community level. African women entrepreneurs in the rural areas face a number of challenges. This calls for more research on the issue of indigenous entrepreneurship and gender.

Next, Fanti S. Pitso, Hassan O. Kaya and Motheo T. Koitsiwe address the question of “Sustainability of Indigenous Knowledge-based Vegetable Garden Projects for Poverty Alleviation: Challenges and Prospects”. The case study investigates the challenges and prospects of sustainability of

indigenous knowledge-based vegetable garden projects in Lekgophung village in the North-West Province of South Africa. The garden projects were initiated by rural women to use their local knowledge of farming and indigenous plants to alleviate their poverty situation. The study found that the sustainability of the projects has been hampered by a lack of project managerial skills; limited participation of the community youth; lack of commitment of project members due to irregular remuneration; problems of financial accountability; rampant theft; and lack of sustainable support from government and other developmental agencies. The contribution recommends that the situation could be improved through incentive strategies to attract youth participation; a holistic approach to human resource capacity building involving project leadership and ordinary members to develop a common perspective on the project development. Cooperation and coordination among similar projects may help participants to share experiences and scarce resources. Sustainable government and development agencies' commitment and support are vital for these community projects, including the promoting of the role of indigenous knowledge as a community-based development resource of the poor.

Turning to sorghum, Michael Vunyingah and Hassan O. Kaya show in their research for this chapter that sorghum is an important indigenous crop with socio-economic and cultural significance in the life of the Kom community in the North-West province of Cameroon. This is an arid area which receives an average annual rainfall of 500 mm. Sorghum is the major staple food crop and source of income for the people. It has served this purpose over the years but like other indigenous food crops in Cameroon it is experiencing a decline in production due to a number of factors. These include the colonial introduction of exotic cash crops; limited land for cultivation; land tenure insecurity; lack of modern farming equipment; and lack of government financial support to small-scale farmers. The chapter recommends that the government develops policy strategies to promote the cultivation of indigenous food crops including sorghum; promotes and supports the interface between indigenous and modern production systems to improve sorghum production; and that extension officers learn about the importance of indigenous knowledge systems and indigenous food crops for the sustainable livelihood of the communities. Government and other development agencies should support small-scale sorghum farmers, especially women with modern inputs and equipment, finance and research

for information on sorghum production, post-harvest and marketing channels. This will promote and improve productivity and sustainability of sorghum production among local producers. There is also a need to interface indigenous and modern production systems including technologies. Agricultural extension officers should learn about the efficacy of indigenous food production systems and integrate them in their work.

In their “The Role of Indigenous Knowledge and Innovation Systems in Sustainable Development in Africa”, Yonah N. Seleti and Hassan O. Kaya demonstrate that IK and community innovations have an important role to play in the sustainable development of the continent. These need to be promoted and supported at both national and continental levels. The research revealed that there is only a minimal contribution to sustainable development by national and continental institutions of innovation in the remobilization of IK and community innovations for sustainable development. It is argued that if these institutions are to be relevant to the sustainable development of the continent, they need to undergo a paradigm shift and take proactive action in the remobilization of IK and community innovations. Moreover, in order for IK and community innovations to be available for use in promoting sustainable development they need to be fully documented, protected and efficiently shared in the interests of the knowledge holders and respective communities. The role of ICT in this endeavour is acknowledged. In order to avoid the duplication of efforts in the continent, the importance of creating networks and partnerships among the different IKS stakeholders is emphasized.

In their research, Keamogetse Seitatolo and Emile Matike demonstrate the importance of ICT in the promotion of IKS for rural development using a case study conducted in Dibate village near Mafikeng (North-West Province), in South Africa. It is argued that embracing Information and Communication Technologies (ICT) for rural development is no longer a luxury but has become an important and urgent need for all African communities. However, the concept of ICT needs to be understood in a broad context, i.e. going beyond modern physical computer equipment, software and networks that are often misunderstood to be designed for the elite and urban population. People must start to see these as resources that could equalize access to knowledge. They can importantly facilitate traditional and rural techniques of gathering, processing and disseminating information. ICT could become a very powerful enabler for the exchange of IKS because local

communities can participate in community-to-community exchanges, and advance their own development by sharing experiences. Community members in the study area were aware of the importance of ICT in rural development and the different types of ICT which could be used to promote IKS for sustainable rural development. Nevertheless, due to unemployment, most community members could not afford modern ICT facilities. The most common and affordable type of media is the radio. The following recommendations are made: publishing the findings to highlight the prospects and challenges of ICT for rural development to researchers, policy makers and other stakeholders; establishment of IKS centres equipped with ICT facilities for documenting, storage and dissemination of IKS; government departments and other development agencies should work closely with communities in promoting IKS using ICT; community members should be trained on the use of ICT to promote IKS; ICT implementers should think very broadly and consider geographic, environmental and contextual challenges that can affect physical access to ICTs.

In the final chapter, Livingstone Makondo focuses on the issue of how IK has been distorted and draws on critical perspectives among the Shona of Zimbabwe. Knowledge generation is a characteristic of every human being. The surrounding needs propel people to be innovative with regard to immediate challenges they face. The Zimbabwean elders long before colonization in 1890 have devised sufficient knowledge systems that encompassed all spectrums of human survival. They had realized ways and means of providing for their basic needs. The chapter argues that their development was choked by colonization and its imposition of “finished” products. The resultant denigration of the local forms of knowledge systems led to their loss of confidence in works of their own hands. This ethnographic participatory study notes that the Shona people’s indigenous knowledge systems provided pragmatic medicinal, transport, agricultural, political counselling and knowledge dissemination mechanisms that met the entire needs of their communities. The entrenched communal system ensured that these knowledge systems were communally owned and passed on to generations through the medium of the mother language. This chapter argues that African people in general and the Shona people of Zimbabwe in particular were a developed and developing people long before their traumatic and choking contact with the West that resultantly stifled and derailed their developmental and innovative prowess.

The IKS Centre of Excellence, Mafikeng campus, of the University of Northwest must be congratulated with this important body of scholarship it has produced. This edited book makes an important contribution to the developing discourse by bringing together critical and constructive voices from within our own context and linking them to continental and international protagonists and the resources of significant international role players and institutions. We regard this publication as an important intervention from within our own society. Ultimately we as Africans need to critically and constructively engage the challenges we and our continent face. In this endeavour our millennia-old store of wisdom traditions and Indigenous knowledge Systems are vital to the emergence of our continent and its people(s) into the era of self-sustainability, development and African-driven modernization.

Section One

Section One comprises of studies which engage indigenous knowledge related to ecology, natural resource management, traditional medicine and healing. The section deals with the following arguments: *First*, as part of promoting the African Renaissance philosophy and liberation of African Indigenous Knowledge from western paradigms and dominant knowledge systems, African scholars and researchers need to refute the views which have been propagated by western scholars about the limitations of cultures and ways of knowing. One of these western views is the assumption that pre-colonial African communities were unable to manage and control their ecosystems. On the contrary, increasing historical testimonies show prosperity among pre-colonial African communities before the incursion of European colonialism. These testimonies should form part of the formal educational curricula in African countries.

Second, existing natural resource management programmes in Africa are based on western knowledge systems and values which marginalize indigenous systems of natural resource and disaster management which have been used for centuries and are culturally acceptable. Consequently, there have been limited research and publications on these indigenous systems to inform policy development. This section presents some examples of African indigenous natural resource and disaster management systems including their challenges and prospects.

Third, is the importance of African indigenous medicine and healing systems. These have been portrayed in western knowledge systems as unscientific. Yet a large proportion of Africans, in both rural and urban areas, depend on them for their spiritual and psychological wellbeing and livelihood, especially in the absence or dearth of modern health and medical care services. This reality should be developed and constructively linked to modern Western medical systems and understandings.

African Indigenous Ecology Control and Sustainable Community Livelihood in Southern African History



Mogomme A. Masoga
Hassan O. Kaya

Based on sources for African Indigenous Ecology Control and Sustainable Community Livelihood in Southern African History this chapter argues that political independence in the Southern African Region has altered the historiography of the region and the African continent as a whole. Africans are now looking to the past for inspiration to constitute the foundations of sustainable livelihoods using their own indigenous knowledge systems and resources. The indicatives of the African Renaissance also demand that we draw on the significance of pre-colonial African communities' control of their ecosystems. Existing testimonies show prosperity among pre-colonial African communities in the region. In order to restore the historical achievements of Africans in the region, IKS should form a constitutive part of education. This chapter as well as this book provides the foundations for this collective endeavour.

Keywords: Indigenous ecology control, sustainable community livelihood, Southern African history

Introduction

Kjekshus (1977) correctly states that the basis for the social and economic development of any society is the ability to control its ecological system or ecosystem. The term ecological system is used to describe the organisation

and interactions of communities of living organisms, including human beings, together with the chemical and physical factors in their environment using indigenous knowledge (IK) and innovation systems for sustainable community livelihood. Ecological systems are characterised by the “nesting of systems”, interdependence, change, and cycling (Phillip, 2000). Indigenous Knowledge and innovation systems in this chapter encompasses the skills, innovations, experiences and insights of people in their respective local communities, accumulated over years and applied to maintain or improve their livelihoods (World Bank, 2004).

Colonial and apartheid historians in Southern Africa propagated the inability of pre-colonial Southern African societies and Africans in general to control their ecological systems, that is, Africans failed to master the environment due to a state of constant warfare; the widespread presence of the tsetse fly which confined people to limited settlement areas; shifting cultivation as the dominant agricultural practice hindered or precluded the possibility of permanent control of the ecosystem.

This chapter rejects this colonial and apartheid picture of pre-colonial Southern Africa and Africa in general, because to the contrary, there exist historical testimonies of wholesome prosperity among the different African indigenous communities who inhabited the region before colonialism. These historical testimonies show that: the region as a whole maintained an ecological control system which was disrupted by colonial incursions and associated wars; the majority of the indigenous agriculturists operated systems of relative permanency, labour intensity and various degrees of water, soil and land management was a people - land relationship which ensured a successful control of the ecosystem. Kuczynski (1949) shows that the reign of the tsetse fly in Southern Africa was a 20th Century phenomenon that followed the breakdown of community-controlled ecological systems due to the impact of colonial and apartheid activities.

Peiper (1920) indicates that another key to ecological control in the region was the existence of a prosperous cattle economy. The keeping of cattle is an important proof of the absence of tsetse fly. It constituted a significant mechanism of ecological control; and the vibrant indigenous economic activities (agriculture, animal husbandry, mining, etc.) gave rise to a number of industrial innovations. These include metal smelting and the forging of implements, salt production and cotton manufacturing. The supply and demand of the agricultural produce and livestock as well as manufactured products were connected by trading relations. The latter acted

as stimuli for the exploitation of the comparative advantages within the indigenous economies. It was these well-developed trading patterns and economic activities, which made foreign interests aware of the interior of the region as a source of commercial riches. This questions the colonial argument that the region lacked indigenous markets and trading activities.

The following sections discuss the following aspects: the demographic situation in pre-colonial Southern Africa; indigenous agricultural systems and settlement patterns; the southern African indigenous cattle complex; African indigenous entomology in pre-colonial Southern Africa; the African indigenous industrial support systems in pre-colonial Southern Africa.

Methodology

This study on African Indigenous Ecology Control and Sustainable Community Livelihood in the Southern African History is based on the examination of existing so-called secondary sources. According to Kragh (1999), in research, a secondary source is a document or recording that relates or discusses information originally presented elsewhere. A secondary source contrasts with a primary source, which is an original source of the information being discussed. Secondary sources involve generalization, analysis, synthesis, interpretation, or evaluation of the original information. This is the focus of this chapter.

The secondary interpretations and generalisations can be internal or external to the topic and based on primary data. This study used relevant sources of secondary interpretations and evaluations, including books and periodicals, government and non-governmental publications related to the research problem. Taking into consideration the comprehensive nature of the study, the researchers consulted a focused selection of secondary sources that interpreted and analysed original data. The following sections present and discuss the analyses and findings.

The Demographic Situation in Pre-Colonial Southern Africa

Wilcox (1996) and Spengler (1990) indicate that there is limited information with regard to the size, distribution and growth of the population in the region during the immediate pre-colonial period. This is due to the fact that the continental assessment of Africa's population by early European explorers indicates that the continental population remained static over the

previous three centuries before colonialism in the 19th Century. They cite a number of factors for this long stagnation. These include periodic famines caused by drought conditions, poverty, and critical health conditions; warfare; and slave-raiding. Yet recent studies show that these factors were applicable with different intensity in the various parts of the region and the continent.

Moreover, most of the colonial data on the African local populations in the continent do not go back beyond 1900. Before that time, numerous explorers visited Eastern, Central and Southern Africa at various points and reported what they saw of the peoples and their socio-economic activities. Besides explorers such as Baumann (1894), who was interested in population densities based on the count of huts and villages, few of these explorers took a scientific interest in the population situation of the African indigenous communities. Most of their reports were highly impressionistic assessments and guesses based on insufficient or unreliable data and sources (Kuczynski, 1949; Peiper, 1920).

Given this important hiatus in colonial knowledge this chapter discusses the indigenous knowledge and innovation systems of the African populations in the region in their effort to control the ecological environment for sustainable livelihood before the coming of colonialism. This control is predicated on the presence of African indigenous people in the region.

Available progressive historical documents indicate that the population of the Southern African region was either stable or showed slight tendencies to expansion throughout the 19th Century (Wallace, 1990). This is contrary to colonial reports showing population disruption and even depopulation in this period. The latter reports deal with occasional local tragedies caused by disease or famine; and concentrate on two specific phenomena of destructive impact on the population, namely internecine wars and slave raiding. These two phenomena are of particular interest to this discussion because they are the twin pillars of what has been called the “maximum population disruption theory”, and acceptance of the primacy of these man-made events as the basis of colonial understanding of the life of the African populations in pre-colonial Southern Africa.

A critical review of the impact of these events using the “maximum population disruption theory”, shows the extreme biases in much of the historical sources on which colonial historians relied. Cooley (1945) already was aware of this danger and wrote about the general tendency of exaggeration among early European reporters who visited Africa. They

elevated “petty wars and tumultuous movements” into “grand conquests and revolutions”. According to him they created a general assumption and impression that a state of barbarism reigned in Africa. The European writers had to prove their prejudices and found evidence to confirm them. Their portrayal of indigenous people as “savage” sought to strengthen this discourse as it was embedded in European discourse about Africa. The more the prejudice was propagated, the the greater would be the glory of bringing Christian light and civilisation, trade and European administration to peoples suffering as much from self as from slavery (Stuhlmann, 1894; Waller, 1985). The following section looks at the indigenous agricultural systems and settlement patterns in the region and their impact on population and socio-economic development.

Indigenous Agricultural Systems and Settlement Patterns

Froehlich (1940) argues that the possibility of population increase in the pre-colonial Southern Africa has not been seriously considered. This was partly because of the widespread belief that the African peasantry was incapable of providing food for a large number of people. European colonialists regarded the African indigenous farmer as useless, too lazy or ignorant to conserve the soil through fertilisation and prevention of erosion. His/her interaction with the land has been held to be predatory, never actively improving it, but exhausting it through thoughtless tilling. After a few years, the peasant faced declining yields and eventual starvation. He/she was then forced to move on to new land where the cycle of clearing and settlement recommenced. Differences in the African indigenous farming systems have been portrayed as automatic adaptations to soil differences and amounted to little more than minor variations in the length of the furrow. The following is an example of a typical statement of European colonial historians’ views of pre-colonial agriculture in Southern Africa and Africa in general:

Indigenous agricultural practices, varying in detail, conformed to the general pattern known as “shifting cultivation”. Land was tilled until its yield began to diminish. It was then abandoned to the slow regenerative agencies of nature and new fields were taken out of the surrounding waste. No attempt was made by systematic rotation of crops or the application of manure, to maintain the soil at a high level of fertility under continuous cultivation. It is believed that to do so

would not only have been exceedingly difficult under African conditions but would also have been entirely pointless. For the system was based on the hitherto valid premise that land was not a scarce factor (Wringley, 1985).

Agriculture in Africa becomes a matter of concern to European historians only with the colonial period. Colonial initiatives and diffusion of western knowledge, crops and techniques are seen as having brought about profound changes in a static socio-economic situation which only the abundance of virgin land could salvage from deterioration and ruin. The few European scholars, who observed some advanced cultivation methods in various parts of the region, attributed these methods to “a special emergency situation” (Grant, 1945; Richter, 1900). These European historians’ views of the past have, in turn, influenced agricultural researchers’ understanding of past African cultivation systems. For instance, one European agricultural researcher in the then Northern Rhodesia (now Zambia) had the following to say:

Threatened by surrounding barbarians, slave-trading and internecine wars, a tribe might have been prevented from shifting cultivation and forced to invent techniques of soil conservation and manuring for permanent settlement (Gourou, 1962).

Thus, advanced agricultural systems were identified as “siege methods” developed under duress. However, progressive studies on African indigenous agriculture in the region made by Trapnell (1937) and Allan (1965) who travelled through the region and other parts of the continent, testify on the vast ecological knowledge of the African indigenous husbandman. They show that indicator trees and grasses were traditionally used to identify the quality of soil and its suitability for specific types of crops. Allan (1965) described the pastoralists in Southern Africa as authorities on grasses, capable of assessing the feed value of different grazing lands and their stock-carrying capacity at different seasons of the year. This “fund of ecological knowledge” was the basis for pre-colonial agriculture and animal husbandry in the region.

Wallace (1990) indicates that only a small minority of peasants operated shifting cultivation rather than being the system pursued by most pre-colonial Southern Africans. According to Wolfgang (2003) this testifies to

the existence of a rich variety of indigenous agriculture among the different African ethnic groups in the region. She rejects the warfare theme and indicates that an increasing population caused food shortages and forced people to intensify their efforts through technological inventions and longer hours of work. The agricultural development that ensued was an adoption of new methods that make possible a more intensive land-use through soil conservation, irrigation systems, and fertilization. African indigenous knowledge systems in agriculture were also demonstrated in animal husbandry as discussed below in the regional indigenous cattle complex in pre-colonial Southern Africa.

The Southern African Indigenous Cattle Complex

Mourd (1975) states that people alone did not maintain the ecological control situation in pre-colonial Southern Africa because cattle played a very important role in the agricultural systems of the different peoples who inhabited the region. Reader (1998) indicates that during the first centuries of the modern era, cattle became an increasingly important component of human systems in various parts of the region. They provided the African pastoralists with a means of exploiting the available natural resources in the semi-arid regions, and contributed to the social and economic development of the local populations.

The grasslands of Southern Africa have been classified by Fosbrooke (1990) as “true climax grasslands”, i.e. they represented a mature and stable form of vegetation ideally adapted to the prevailing ecological circumstances. Wild animals, hunters and gatherers had exploited these environments for millennia, and African agropastoralists and farmers had been present in surrounding lowland regions since around 300 CE. However, settlements dating from the tenth century which have been excavated at Mapungubwe in the Limpopo valley represent an intensification of farming activity including cattle herding within the region. Monod (1975) shows that cattle were the enabling factor. Historical testimonies show that Mapungubwe was the largest in a widespread local hierarchy of settlements, which were established during the warm and moist conditions that characterised the climate of the region from 900 to 1300 CE.

Furthermore, Nisbet (1991) shows that during the twentieth century the Mapungubwe area has become a “drought trough”, incapable of supporting a resident population, whereas 900 years ago, the area was populated by

thousands of farmers. Cattle thrived and people adapted their social and economic patterns to the advantages and constraints of the natural environment. Mapungubwe preserves a record of the beginning of the cattle culture in Southern Africa, which spread rapidly across the grasslands of the region from what is now Zimbabwe to the Cape. As is the case everywhere else, the cattle of Southern Africa converted an inedible resource, grass, into produce of value.

Schoenbrun (1990) adds that prior to the advent of cattle herding on the grasslands of Southern Africa societies lacked any kind of surplus or economic wealth that was worth fighting for or defending. With the increase of cattle, however, disputes about grazing areas arose and these progressively led to the dispersal of people rather than conflict. In this way, cattle converted expanses of otherwise worthless grasslands into items of wealth that could be owned, controlled and inherited. A new order of values emerged, characterised by a greater stratification of society and an increasing incidence of conflict between groups.

Cattle were also central to the economic and social life of the Shona people. The unique stone buildings “dzimba dzemabwe” are a lasting testimony to their presence and widespread influence (Reader, 1998). The distribution of Zimbabwe settlements throughout the Shona region correlates to a striking degree with the ecological conditions that optimise cattle production. A survey done by Brett (1993) testifies that most of Zimbabwe was located within daily herding distance of the contour line above which ambient temperatures limited distribution of the tsetse fly. The plateau was, in effect, a tsetse-free peninsula, whose boundaries moved back and forth with the tide of seasonal and long-term climatic variation.

The location of Zimbabwe accommodated these variations while affording best access to the grassland resource. The Shona also grew cereals and vegetables, but it was the keeping of cattle that enabled their Zimbabwe settlements to achieve permanence and high population densities in what was essentially a savannah environment. Evidence of intensive meat consumption has been found at other Zimbabwe sites, indicating a widespread and intensive beef-producing economy in which cattle were bred for meat and herds produced a regular surplus of animals for slaughter. Edholm (2001) indicates that highly stratified political systems evolved directly from the ecological requirements of cattle herding, with strong correlation between political stratification and the relative size of herds and settlements.

Fosbrooke (1990) elaborates that all the Bantu-speaking groups of Southern Africa, including the Swazi, the Sotho, the Tswana, the Shona, the Ndebele, the Venda, the Xhosa, and the Zulu, developed economies and political systems that were founded upon the wealth of cattle. But none could depend upon cattle alone. All required large quantities of cereals as well. In the early stages of the cattle herders' migratory drift through southern latitudes, Africa's indigenous sorghums and millets had fulfilled these needs; cereals outputs increased markedly when maize was added to their agricultural repertoire. The keeping of cattle also went together with the development of a wide knowledge of African indigenous entomology.

African Indigenous Entomology in Pre-colonial Southern Africa

Edholm (2001) and Schoenrun (1990) state that the reports of the early European explorers in Southern Africa and other parts of Africa, testify that African local communities knew and understood the relationship between tsetse flies, wild animals, the bush and the survival of their own cattle. The African indigenous cattle initiative resulted from successful imposition of a human-controlled ecological system. Cattle herders in the region benefited from the prior advance of agricultural pioneers who, largely by the help of fire, cleared the land and isolated the wild animals and their accompanying tsetse flies to the unattractive "badlands". The cattle-keeping peoples seem to have explored and known these localities and evaded them when herding. Long experience and keen observation thus seem to have equipped the African husbandmen with what Ford (1990) called "an agro-horticultural prophylaxis", where the flies were naturally isolated to limited and well-known foci that could be evaded when herding and annually controlled through fire.

It seems that such fly-infested areas were opened up for emergency grazing during times of drought. The cattle owners would then deliberately drive their herds into the ungrassed tsetse bush gambling that the possible death through fly-infection was a better risk than the certain death from famine. This extreme measure, which was used by different ethnic groups in the region, was probably an indigenous survival technique utilised by the African herdsmen. It underlines the argument made earlier that the tsetse infested areas were known to the herders and were avoided under normal circumstances.

Besides the discovery that nocturnal movements of the cattle were a relatively safe undertaking in tsetse territory, several experiments were made with repellents of an unsavoury but reportedly efficient nature. For instance, Kirk (1865) who had made various studies in Central and Southern Africa wrote the following.

The fly avoids human excrement, so the natives told us, and we have found it true, and they say that cattle have been passed by day through fly country when smeared with a composition containing this. Native doctors have an herb to which they attribute a similar effect, but they never assert that it will save all.

The missionary and explorer David Livingstone (1874) who also passed through the region reported further advances in the repellent technique:

Lion's fat is regarded as a sure preventive of tsetse ... it is smeared on the ox's tail, and preserves hundreds of cattle in safety while going to the coast...

Stuhlman (1894) observed the practice of smoking the cattle as a temporary repellent against the tsetse fly. Among the different African cattle herders in the region such fires were made from sun-dried cattle dung. Fire burnt in the cattle kraals during the night generated a very strong smell from which the cattle received a certain degree of protection. The smoke treatment was apparently a widely used practice among many ethnic groups in Eastern, Central and Southern Africa, both against tsetse flies and ordinary houseflies. It was also adopted by caravan captains when transporting cattle for sale or as provisioning for porters in the trading caravans.

Steinberg (1865) indicates that advancing beyond the simple use of smoke for fly protection, some herders apparently ventured into herbal devices for medicinal cures against the illness caused by tsetse flies in the cattle. He states the following experience:

The Karangaman showed us a plant ... likewise told us how the medicine was prepared; the bark of the root, and what might please our homeopathic friends, a dozen of the tsetse are dried, and ground together into a fine powder. The mixture is administered internally,

and the cattle are fumigated by burning under them the rest of the plant collected. The treatment must be continued for weeks, whenever the symptoms of poison appear

In frank recognition of the African tsetse control initiative, Woefel (1911) admits that in the 19th Century there were cattle in various parts of Southern Africa where there were none during most of the 20th Century. The tsetse fly areas were isolated and known and were therefore no absolute hindrance to economic development. He argues that very few historians have addressed themselves seriously to the real socio-economic achievements of the pre-colonial period in the region and elsewhere in the continent. The European colonial historians' fascination has been captured by the wars of chiefs and the intrusion of foreign elements into the region at the exclusion of the peaceful and constructive endeavours of the African people themselves. With regard to cattle, the dominant proposition among these colonial historians was that where there are tsetse flies there could be no cattle keeping and other economic activity. The following testimony from British Survey Division presented by Ford (1990) propagates this view:

Tsetse flies (Genus *Glossina*) which infect man and his domestic animals with parasitic trypanosomes causing fatal disease in both, occupy over two thirds of Southern Africa. Seven species occur All these species have been responsible for epidemics of sleeping sickness in this territory and others They all cause trypanosomiasis in domestic animals, so that wherever they are established, man cannot keep cattle or other stock.

The above became an official dogma in 1925 when the Ormsby-Gore Commission (1925) identified the tsetse fly as "the greatest menace" to the development of tropical Africa. The tsetse fly was held to have a general menace in the tropics from time immemorial. Intertribal warfare and slave raiding had for centuries depopulated the interior and opened the terrain for the spread of *Glossina*. The social organization of the pre-colonial times arose from these dangers.

The African, so the thinking went, had before the European arrival been living in large fortified villages for protection against marauding tribes and slave-raiders. The nucleated villages were localities of dense population around which effective barriers of cleared ground could be maintained

against the surrounding tsetse fly. Within these sanctuaries agriculture could be practised and livestock kept. With the arrival of Europeans, however, and the suppression of intertribal warfare, Africans in the region began to spread into the bush to escape from the demands of civilization. But exposed to the ravages of the tsetse, these people were unable to keep cattle. The following section looks at the African indigenous industrial and technological support system to the agricultural initiative in the region.

The African Indigenous Industrial Support Systems in Pre-Colonial Southern Africa

No discussion of the pre-colonial economy in Southern Africa and Africa at large could be complete without an examination of its industrial components. The latter formed an integral part of the indigenous pre-colonial economy and contributed significantly to the region's pre-colonial economic expansion. In this chapter emphasis is placed on the African indigenous metal-smelting and tool-making industry because it was directly related to the indigenous agricultural initiative. This was related to the new needs for foodstuffs that arose from the increasing population pressure. Technological innovations accompanied intensified food production and as in the case of the iron hoe, contributed to the improved agricultural techniques.

Soper (1967) and Chittick (1966) show that most of the recent studies on the origin and spread of iron making in Africa tend to be pre-occupied with the opening period of the "Iron-Age". The colonial historians' assertion was that the immediate pre-colonial period (18th - 19th Century) in Africa was characterised by industrial decline, due to intertribal warfare and slave raiding. In the Case of Southern and Central Africa, the Zulu impis swept from the south over to Central and East Africa leaving death and destruction in their wake. This is contrary to the general review of the literature of the region, which testifies that during the immediate pre-colonial period metal production was a widespread and significant phenomenon.

Manfred (1986) states that simple but effective metal-making techniques yielded enough metal to satisfy the local demands for raw iron and forged implements. Blacksmiths were known in practically every tribe in Southern Africa. These skilled craftsmen enjoyed extraordinary social and even political prestige within their respective communities and beyond. Records of European travellers in the region mention a number of tools manufactured and traded through the regional trading networks. The list

comprised of field hoes, spears, assegais, and arrow-heads, battle-axes, hatchets, knives and daggers, sickles and razors, rings and wire circles. Bells of different kinds were also brought by caravan carriers probably for resale to the cattle peoples. Pipes with metal bowls and stems entered the trade along with all kinds of pincers or pliers (Grant, 1945).

The second industrial initiative in the region and other parts of Africa was salt making. This was also linked to agricultural expansion, because it was the prevailing plant diet of the agriculturalists, which gave rise to an independent demand for inorganic salt. Bloch (1963) argues that demand for salt from sources external to the immediate economy arose with the establishment of settled agriculturalists living on a vegetarian diet which, although it contains a great deal of potassium, is largely deficient of other necessary salts. Thus, a demand for man-produced (inorganic) salt and a subsequent industry and trade could be expected to be found largely, if not exclusively, among the agricultural peoples of the pre-colonial Southern Africa.

While much of the old salt production was intended for home consumption only, some centres of production among the different African ethnic groups were clearly of great magnitude. Their activities have been described as an industrial undertaking carried out by specialised salt boilers producing for distant markets and providing the commodity for important transport undertakings (Richter, 1900; Good, 1972).

In pursuing the pre-colonial African initiative in salt production, one could follow Springer's (1918) suggestion of a correlation between a diet with a vegetarian basis and demand for inorganic salt on the one hand, and the absence of such a demand among people with animal food as their main nutrient on the other. The underlying reason for this connection is that people relying on a milk and blood diet receive most of their salt needs (calcium, sodium and potassium) through the food (Baumann, 1894).

Another African indigenous industrial initiative in the region was cotton manufacturing. The African indigenous textile industry bears a direct relevance to the agricultural diversification of the pre-colonial Southern Africa. It reflected not only an important crop adoption, but also a high degree of technical skill. When European missionaries sought to rescue the local weaving industry in some parts of the region, one of their difficulties was the reconstruction of the local looms which were described as "very complicated and of a delicate construction" (Lechaptois, 1913).

The above stated industrial initiatives do not exhaust the technological supports of the pre-colonial economy in the region. There were also other important industrial initiatives such as the production of bark cloth, tanned skins, pottery, weapons and ornaments. The African indigenous agricultural, industrial and technological base led to the development of African indigenous markets and trading networks within and outside the region.

African Indigenous Markets and Trading Networks in Pre-Colonial Southern Africa

A number of recent studies have pursued the African initiative in marketing and trade (Hodder and Ukwu, 1969). Several disciplines have also contributed to the building of explanatory models of markets in Africa and brought together empirical data on trading operations in historic times. Two contrasting theories of market origin and the spread of trade have been identified. Most of the existing literature falls into either of these. One theory sees the market formation in Africa as the outcome of an indigenous polyfocal process, starting with the individual's or group's economic needs and self-interests, and developing through barter in local markets to become externalised and connected to neighbouring peoples via transport operations and regional trading (Wood, 1994; Good, 1972).

A second theory sees African indigenous markets and trade as being implanted in marketless societies through a diffusion process of external origin. Thus, markets in Africa are not held to the origins of long-distance trading but rather its results. According to Hodder and Ukwu (1969),

the bulk of traditional markets in sub-Saharan Africa received their initial stimulus from external, long-distance trading contacts.

Southern Africa has received relatively little attention in research on pre-colonial African trading and market initiatives. The tendency has until recently been to endorse Polly Hill's verdict (1963) of a marketless Eastern, Central and Southern part of the continent. This is in contrast to pre-colonial markets and trade in many parts of West Africa, as "one of the great geographical dichotomies of Africa".

A very similar debate on the situation of indigenous African markets and trade in pre-colonial Southern Africa was settled in favour of the indigenous market agency by Froehlich (1940). His pioneering work in the region refuted the prevailing notions of closed subsistence economies

without trace of markets and trade. He built up the case for an African indigenous trading development long before colonial contacts had taken place. Froehlich's thesis was built on a massive compilation of anthropological material from numerous tribes across the African continent, supplemented by travellers' accounts from the same areas. To this material is now being added the emerging archaeological evidence that confirms the movement of commodities over large distances as part of the cultural totality of the continent dating back to the early Iron Age.

For instance, in a review which includes parts of the southern and central African regions, Fagan (1970) showed that the demands of metallurgists and farmers led to "contacts between communities living up to several hundred miles apart ... and developed into complicated barter networks extending over enormous areas".

An inventory of Great Zimbabwe's historical treasures, listed about 25 kg of iron wire and about 100 kg of assorted hoes, axes, and chisels, items which would have been of value to farmers and miners living farther afield. As such they suggest that Great Zimbabwe was the focal point for a substantial internal African trade. Furthermore, "cakes of copper" and other items bearing strong affinities with artefacts characteristic of Zambia, the Congo basin, and West Africa, indicate the conclusion that Great Zimbabwe was on the eastern edge of a widespread and complex internal trading network which substantially pre-dates the external trade that was founded primarily on gold (Reader, 1998).

Thus, early African market and trading networks seem to be reaffirmed. Later trading impulses, notably the 19th Century arrival of overseas initiatives could build on a ready framework of commodities and routes as well as on a psychology of enterprise growing out of the local situation of economic change. Local and regional trade, particularly in iron and salt, is uniformly seen by recent researchers (Roberts 1970; Tosh 1970) as the basis of commercial expansion in the 19th Century in the region and the continent at large.

Conclusion

The study demonstrated that emerging historical testimonies refute the colonial and Western views that pre-colonial Africans in the Southern African region had no control over their environmental conditions. It showed that to the contrary, existing historical testimonies show wholesome prosperity among the different pre-colonial indigenous communities who

inhabited the region throughout the 19th Century and before. Indigenous African agriculturists operated different systems of relative permanency. There was a people-land relationship, which ensured a successful control of the ecosystem. There are important signs of local and regional division of labour between industrial communities and those specialising in agricultural pursuits. This division of labour provides an important clue that there was surplus production and novel agricultural techniques in the region before colonialism.

Another key to indigenous ecological control was the existence of a prosperous cattle economy. The Southern African herdsmen understood and managed to control the dangers of the tsetse fly to their domestic animals, notably to cattle. The indigenous cattle complex, which existed in the region, constituted a significant mechanism and evidence of indigenous ecological control. The vibrant indigenous social and economic activities gave rise to a number of industrial innovations and trading relations within and outside the region. It was these well-developed trading patterns and economic activities, which made foreign interests aware of the interior of the region as a source of commercial riches. In the light of the evidence, there is need, therefore, to conduct more research in this area within the region and Africa as a whole, in order to restore the dignity and historical achievements of the indigenous African people. The information from these research activities should form part of the educational system of the current and future generations as a contribution to the Africa's Renaissance.

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Batswana Indigenous Natural Disaster Management Systems



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As founded by the Batswana Indigenous Natural Disaster Management Systems study in the North-West province, African indigenous communities have a rich tradition of natural disaster management. Batswana use the behaviour of various natural phenomena such as animals, births, plants, insects, and game as early warning indicators of natural disasters. Since much of this indigenous knowledge is not documented and hence not known to the public, it stands in danger of being lost as the older generations who are the custodians of this knowledge die. In addition to the recommendation of further study of this phenomenon, it also seeks to use this focus to conscientise about forces that impact on climate change. Researched knowledge could be stored in data banks and networks could be developed in which people share their experience of this knowledge. It could also be incorporated into development and legal policies and taught in schools, so that it links up and becomes integrated with modern technological knowledge and technological systems.

Keywords: Batswana Indigenous Knowledge Systems, natural disaster management, North-West province

Introduction

Natural disasters from floods, droughts and earthquakes to cyclones, landslides and tsunamis are becoming more destructive in most countries,

both developed and developing. They spell misery for hundreds to sometimes millions of victims who suffer injury and loss of livelihoods. Salim (2002) defines disaster as a severe, relatively sudden, and unexpected disruption of normal structural arrangements within a social or natural system over which the system has no firm control.

Environmental conservation and natural disaster management are important in the livelihoods of African local communities (Kamara, 2008). “The people in the communities often live in hazard-prone areas and have built up, through decades if not hundreds of years of experience and intimate contact with the environment, a vast body of knowledge on disastrous events. This knowledge is a precious resource that continues to contribute to environmental conservation and natural disaster management in these regions and communities” (cf. *Indigenous Knowledge in Disaster Management in Africa*).

Indigenous Knowledge (IK) refers to the unique, traditional local knowledge existing within and developed around the specific conditions of a community, indigenous to a particular geographical area, covering all aspects of life including management of the natural environment upon which their livelihoods and survival depend (Dei, 2004). Indigenous Knowledge is based on, and is deeply embedded in local experience and historical reality of a community. It develops over centuries of observation on how to adapt to local conditions (Kamara, 2008; World Bank, 2004).

Forno (2002) argues that in the African traditional worldview, environmental resources such as land, water, animals and plants are not just production factors with economic significance but also have their place within the sanctity of nature. Brokensha and Riley (1991) further show that “African communities had a vast fund of knowledge on prediction and early warning against natural disasters such as drought and floods which caused famine and food insecurity. Traditions, customs, beliefs and cultural rights also played an important role in environmental conservation and biodiversity” (UNEP, 2005; cf. also *Indigenous Knowledge in Disaster Management in Africa*).

Similar use of African indigenous knowledge for natural disaster management is also prevalent among the Batswana. The latter are an African indigenous tribal group composed of various ethnic groupings. Some of them are found in both South Africa and Botswana. The following Batswana ethnic groupings are found in the North-West province in South Africa (with

their location in brackets): Barolong (Mafikeng), Bafokeng (Phokeng), Bakgatla (Moruleng), Batlhaping (Taung), Bahurutshe/ Batshweneng (Lehurutse), Batlokwa (Tlokweneng) and Baphiri (Mabaalstad).

This chapter argues that the valuable indigenous knowledge of the Batswana has not been documented and harnessed to fit into the current scientific framework. As a result, there is a general lack of information and understanding of this knowledge and also not sufficient assistance to integrate it into the wider scientific body of knowledge. On the basis of the findings of the study on Batswana Indigenous Knowledge Systems in natural disaster management in the North-West province, South Africa, this chapter discusses the following aspects: Batswana indigenous natural disaster early warning systems; Batswana natural disaster preparedness; and the use of Batswana indigenous knowledge in natural disaster preparedness for food security.

Methodology

Taking into consideration the community-based nature of indigenous knowledge systems (IKS) the study followed a participatory research approach. In her discussion on participatory research approach Macaulay (2007) explains that in the past, researchers have inadvertently caused stigmatization of various populations, first by not involving community members and then through publishing negative findings. In contrast, participatory research, which is based on a partnership between researchers and those affected by the issue being studied, promotes the voice of those being researched. According to her, participatory research could be defined as researchers working in partnership with “those affected by the issue under study” and is increasingly recognized as a highly effective method of adding relevance and value to primary health care research. The equally important goals of participatory research are to undertake high-quality research, benefit the community or group where the research is occurring, and develop knowledge applicable to other settings.

In this study Batswana community knowledge holders and IKS practitioners such as traditional healers, community elders and leaders, in the study communities were actively involved in the whole research process. Their views were sought in all stages of the research including the selection of cases to be studied and interpretation of the data collected. The study was

conducted among the following Batswana tribal grouping in the North-West province, that is, Barolong, Baphalane, Baphiri, Bakgatla, Batlhaping, Bakubung, Batlokwa, Bahurutshe, and Batlhako. The researchers live in the North-West province.

In consultation with community leaders, elders and other key persons in the district municipalities a purposive sample of 180 respondents (100 women and 80 men) participated in the study. Berelson (2000) defines a purposive sample as a non-representative subset of some larger population, and is constructed to serve a very specific need or purpose. A researcher may have a specific group in mind, such as traditional healers. It may not be possible to specify the population. They would not all be known, and access will be difficult. The researcher will attempt to zero in on the target group, interviewing whoever is available.

In this study women were given a high representation in the sample because according to the community leaders, they were the main knowledge holders of the major activities of community life such as agriculture, food security, and natural resource management. They had a very wide indigenous knowledge of environmental conditions including climatic changes.

Qualitative research methods such as key informant interviews, focus group discussions and participant observations formed the core of the data collection methods. These qualitative field methods were used to gather in-depth information on the study population's cultural attitudes and opinions related to the various aspects of the research problem. Key informants such as traditional healers, heads of households (male and female), and community elders (male and female) were interviewed at all levels of the research process as a means to gain in-depth qualitative information.

Borneman and Hammoudi (2009) define qualitative research as a method of inquiry appropriated in many different academic disciplines, traditionally in the social sciences. Qualitative research aim to gather an in-depth understanding of human behaviour and the reasons that govern such behaviour. The qualitative method investigates the why and how of decision making, not just what, where, when. Hence, smaller but focused samples are more often needed, rather than large samples.

This approach is a traditional method of the social scientists for extracting cultural knowledge through well-placed individuals in the society. It is part of the social science approach, often being used in situations where access to official records or data is weak or non-existent. Where official

records exist, it is used as a means to gain further insight by questioning key people about their modes of life or specific social problems. This approach contrasts with quantitative questionnaires which allow only controlled and structured responses within narrow parameters (Faubion and Marcus, 2009).

Focus group discussions were also conducted with randomly selected groups of 6-10 community members in the study areas.

MacKay and Camacho (2005) indicate that in a focus group discussion people from similar backgrounds or experiences (for example, IKS practitioners such local farmers, traditional healers, and community leaders) are brought together to discuss a specific topic of interest to the research process. Homogeneous samples are preferred because mixing age/ gender groups may inhibit some people, especially women, from expressing their views. The purposes of a focus group discussion are to: explore the range of opinions/ views on a topic of interest; collect a wide variety of local terms and expressions used to describe a phenomenon; and explore meanings of survey findings that cannot be explained statistically.

Focus groups discussions are different from other types of group interviews in that they focus on a particular topic and they rely on group dynamics in order to generate data. The interaction is mainly between group members themselves and not between the members of the group and the interviewer. Group interaction is used in this type of research to generate data and as a source of data analysis. The assumption is that there is an interaction that is productive in widening the range of responses, in activating forgotten details of cultural experience/ knowledge and in releasing inhibitions that are part and parcel of interviews with individuals (Morgan, 1998; Stewart and Shamdasani, 1990; and Dick, 1990).

In his discussion of data analysis, Ader (2008) describes analysis of data as a process of inspecting, cleaning, transforming, and modelling data with the goal of highlighting useful information, suggesting conclusions, and supporting decision making. Data analysis has multiple facets and approaches, encompassing diverse techniques under a variety of names, in different business, science, and social science domains.

In this research study the qualitative data in the form of audio taped interviews were transcribed and translated from Setswana into English. Interview and participant observation notes were typed and a content analysis conducted.

Eberhardt (1991) defines content analysis as a systematic analysis of the content rather than the structure of a communication, such as a written work, speech, or film, including the study of thematic and symbolic elements to determine the objective or meaning of the communication. In this study whenever possible the site research assistant was also the person who transcribed and translated audio tapes for the site to ensure data accuracy.

Presentation and Discussion of Research Findings

The respondent community members were asked to indicate through a questionnaire, face-to face interviews and focus group discussions, among other issues related to the research problem, the following aspects: indigenous early warning indicators of natural disasters such as drought, floods, and famine; What did the community do traditionally to prepare for these natural disasters? What did they do specifically to prepare for food security? The responses are discussed below.

Batswana Indigenous Knowledge on Early Warning Systems

Batswana local communities have an array of early warning indicators and well-developed structures through which the wisdom of the community is applied to deal quickly and efficiently with disasters. The structures such as a council of elders, traditional healers and the speed and strength of numerous young people that can be used to investigate a particular phenomenon or to pass on urgent messages upon need are used. Traditionally, they use plants, domestic and wild animals, birds, insects, atmospheric, astronomic and wind as indicators of various forms of natural disaster in their arid and semi-arid environment (cf. Indigenous Knowledge in Disaster Management in Africa).

Interviews with key persons such as community knowledge holders revealed that there are certain tree behaviours which indicate when famine was imminent. For instance, when the Moretlwa (wild berry tree or *Grewia flava*) and Motlhatswa (*Transvaal milkplum*) have a lot of fruit, it signifies that there will be less rain because these trees require heat, sunshine and less moisture to bear fruits.

(i) Certain plant behaviours were generally observed as indicators of rainfall. For example, a good amount of well distributed rainfall is signalled by the presence of higher than normal flowering intensity of certain trees; the

immature dropping of fruits by certain tree species, the shedding of leaves of the sycamore fig (*Ficus sycomorus*) during August to October and the exuding of water from the leaves of the *Albizia schimperiana* before the onset of rains in September/ October.

Interviews with Batswana community knowledge holders in the various areas of the province indicated that certain indigenous shrubs and trees signalled the approach or advent of certain annual seasons like winter, spring and summer including the imminent onset of rains or drought. For instance, interview with Rre Lephunyake Wa Mogokgo (a head man of the Batlokwa in Madikwe area) showed that when the cactus plant buds around November to January, rain can be expected within a week.

(ii) Rre Monyatsi (a community knowledge holder around Mafikeng) demonstrated to the researchers a wide knowledge and experience on the behaviour of insects as indicators of forthcoming changes in the weather conditions. He stated that insects are sensitive to more extreme weather conditions, especially temperatures, than larger animals and human beings. He informed the researchers that experience with insects in the area showed that changes in temperatures affect insect numbers and activity more than any other weather condition. For instance, numbers usually decline significantly during extended dry periods and increase greatly when good rains break the drought.

Rre Monyatsi revealed that some species of ants will, apparently, raise the level of the soil around the entrance hole to their nest when rain is on the way, possibly to prevent surface runoff from entering the nest. He pointed out that the height of the soil around the hole was indicative of the amount of rain which was coming.

(iii) The behaviour of animals was frequently used by Batswana elders to foretell weather conditions. Batswana are traditionally cattle herders, therefore, if cattle were seen to be frolicking on their way back from grazing in the evening and were reluctant to go for grazing the next morning, it was an indication of the abundance of rains in the following season. Again, if in October or November donkeys were seen shaking their bodies vigorously while standing, it was a sign that the rains were about to start.

Wild animals' behaviours were also used to predict weather conditions: if lions and hippopotamuses made frequent roaring sounds in

October or November, this was a sign that there would be a lot of rain in the coming season.

(iv) Batswana use bird behaviour to predict natural disasters. For instance, they use the height of the nests of certain birds on trees growing by river banks to predict floods. When floods were likely to occur, the nests were very high up on the trees and when floods were unlikely the nests were low. For instance, weavers nesting high up in trees, especially along the banks of river and lakes, were a sign of heavy rains and forthcoming floods. Finches also build their nests higher than usual, and with great care, when heavy rain is coming.

They also used the cry of certain birds to predict rain; certain birds were seen for only two weeks before the rains started and not at any other time; and other birds sang once a week before the rains commenced; when partridge birds (*kgaka*) stopped moving after a signal from the leader and made a special sound, the rainy season was about to start; and when ostriches made roaring sounds, the start of the rainy season was known to be around the corner.

(v) Insects were also frequently used by Batswana elders to foretell weather. Certain phenomena associated with insects such as the appearance of red ants in large swarms in October or November, bees flying from hills to lowlands and the appearance of a large number of moist anthills in August or September were all signs that the season was going to be wet.

(vi) There were also atmospheric indicators used by community knowledge holders to determine weather conditions. For example, hot weather, especially at night, during the months of September to November, signal the advent of good rains and a long growing season. On the other hand, low night temperatures during the same months were indicative of a late onset of the rainy season and the possibility of drought. Similarly, the rising of air temperatures to above normal levels at night during August to October was an indicator of high rainfall in the coming season.

(vii) Wind direction was also used as indicators: if prevailing winds blew from west to east in September or October, it indicated that the rainy season was about to start. If prevailing winds in August changed direction from

westerly to southerly the season was likely to be wet, but if the winds changed from northerly to easterly, below normal rainfall, possible drought conditions were to be expected. Strong winds associated with hot sunny conditions and frequent incidences of dust devils during the months of August and October were indications of above normal rains.

The study was also interested in investigating the issue of IK in disaster preparedness, especially with regard to food security. This is discussed below.

Batswana Indigenous Natural Disaster Preparedness

According to the community knowledge holders the Batswana had over the years devised mechanisms of natural disaster preparedness against heavy rains/ floods, hail, cyclones and thunderstorms. For heavy rains and flood control, the Batswana believed that during the floods the mud could be poured in a container and be boiled to dry up. As soon as the water from the mud dried, the floods would also stop. They also believed that when rough salt was thrown into the fire; the rain would stop. The same applied to the belief that if women and mothers carried dishes, plates, to the night chambers on their backs facing down and wrapped these objects with their shawls as if they were carrying babies on their backs while they continued with their daily chores in the rain, the rain would stop.

For hail control, it was believed that during hail if the first born child went outside and sucked the hail, it would stop. Some Setswana cultures believed that it has to be the last child because this symbolized the last hail the village will experience. Furthermore, it was also believed that if one of the elders took two pieces of iron and while standing at the middle of the gate, hit them against each other to make a sound and the hail will stop.

The Batswana also believe that they could control cyclones and storms so that during a thunder storm, they will only experience a heavy wind with dark clouds. They believed that when the wind becomes strong and the clouds become dark, one of the village elders could stand outside in the middle of the court yard and reprimand the storm and the thunder – saying “*Sefefo didimala kapo Maru didimala*” that is, wind stop or thunder stop. Moreover, the chief, as the leader of the tribe, used to call an appointed traditional healer to ascertain the source of the thunder storm and the chief

and the healer would instruct the whole village to go to the veld outside the village and shout in unison to chase the thunderstorm away.

Signs of Thunder and Storms

According to the Batswana belief system, the sign of thunder and storms are as follows: clouds resemble mountains in the sky. When this happens, the Batswana know that they have to prepare to control and stop the severity of the pending storm. When a cyclone raised “*setsokotsane*” and was in the shape of a cow’s tail, the community predicted danger and the destruction of houses and the environment. They also believe that when the big river snake relocates from one river to another, it leaves a trail of disaster. Houses are destroyed and trees uprooted. Sometimes when its young ones were killed or captured the same disaster could occur. Traditional healers were then called to cleanse the area in order to prevent this from recurring. It was believed that when pythons are killed during harvest, there would be thunderstorms and the crops would be destroyed.

Use of Batswana Indigenous Knowledge in Natural Disaster Preparedness for Food Security

According to the Batswana community knowledge holders, when indicators for weather and climate signified the occurrence of a drought it was also a signal for crop failure and shortage of fodder for livestock which could lead to possible occurrence of famine. Famine does not necessarily result from drought only. Red locusts and desert locusts and other pests and diseases sometimes precipitate famine, but most incidences of famine among the Batswana were associated with drought. Therefore, after a good harvest granaries were filled with grain as a coping strategic reserve against famine. The granaries are made of different materials depending on the area. Some ethnic groups use honey, ashes cow dung, etc. as a preservative for cereals and other seeds to be used during famine. For instance different types of cakes were prepared by using honey such as honey-sorghum and honey baobab fruit cakes. These cakes are preserved so that they could be eaten during famine. Another food security strategy against famine is the use of early maturing crops. When drought is predicted the growing of early

maturing or drought tolerant crops such as sweet potatoes and sorghum is encouraged.

According to the community knowledge holders, mixed cropping or intercropping is used as a strategy to stabilize yields, preserve the soil and make it possible to harvest different crops at the same time. Other advantages for these indigenous farming strategies are a reduction in susceptibility of the crops to pests and diseases and a better use of the environment where the combination of species grown had different light requirements or explored different depths of soil. The system also tended to provide a complete vegetation canopy at different heights and thus broke up heavy rainfall and protect the soil (cf. also Indigenous Knowledge in Disaster Management in Africa). After harvesting the corn, millet or sorghum the crop is covered with ashes or with cow dung to protect it from insects. It is put into bags and transported to the family house.

The focus group discussion also revealed that to mitigate against drought the Fig tree (*ficus* spp) was used by the local people as a water catchment plant species for divining water when locating village well sites. It was believed to maintain a perennial supply of water in the well if it was left to grow near it. The Fig trees were left to grow in water catchments to maintain a constant source of water for springs and wells. These trees have taproots and widespread lateral roots that hold wet soil and maintain wetness of the soil after rainfall. Local communities also plant drought tolerant crops such as pigeon peas, finger millet, sorghum, bulrush millet, cow peas and sweet potatoes.

In some Batswana local communities, valley farming is practiced. This is the farming system that makes use of small water catchments. Rainwater stored in the soil on hills during the previous rainy season is used in the dry season to grow crops as it flowed into streams in nearby valleys. Crops, such as maize, beans and pumpkins are grown on the banks of the stream, using the water that seep through the soil from the stream.

During famine, some edible plant products gathered from leaves, fruits, roots, seeds, nuts, tubers and mushrooms are consumed as food. Wild fruits and berries collected in the forest or from trees retained on farm lands are an important famine relief food substitute, especially for children. Indigenous fruits and berries are seen as a free source of food that require no preparation and provide a nutritious snack for children.

During flood times, whenever upstream inhabitants along rivers and streams notice signs of swelling on account of floods, they notified downstream inhabitants about the danger by drumming, blowing of horns or shouting out aloud. Often thunderstorms occurred when people were farming in the fields. There were always shelters constructed in the fields to protect people in time of storms or heavy rain. In case a thunderstorm is imminent, people sought refuge in nearby caves.

Landslides and mudslides occur when soils on steep slopes become soggy due to an abnormally wet season. The probability of occurrence of this phenomenon was enhanced by the absence of vegetation cover whose root system had the ability to hold soil tenaciously in place. Indiscriminate felling of trees on steep slopes is thus discouraged. People are also discouraged from building houses on steep slopes.

Conclusion

This study demonstrated the wealth and the value of indigenous knowledge systems among the Batswana in natural disaster management. Similar to other parts in Africa, much of this knowledge is not known to the public and is not used to date because it has not been documented. It stands in danger of being lost as the custodians of the community wisdom, the older generation, die. The major recommendations, therefore, are that further research should be carried out on indigenous knowledge systems in the various Batswana and other ethnic groups in the country; indigenous knowledge data banks and networks should be established for sharing knowledge; the documented indigenous knowledge should be incorporated into local, provincial and national development plans and taught in schools; and efforts should be made to integrate indigenous knowledge systems with modern knowledge systems and appropriate laws should be enacted to protect intellectual property in indigenous knowledge (cf. *Indigenous Knowledge in Disaster Management in Africa*).

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Batswana Indigenous Water Management Systems in Arid Areas

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This case study focuses on Batswana indigenous water management systems in the arid environment of the North-West province. It demonstrates that African indigenous communities have for centuries developed indigenous practical ways for managing their community water systems. These systems had a number of advantages: they increase the productivity of agricultural land by increasing yields and reducing the risk of crop failure; they facilitate reforestation, hence the fight against desertification and mitigation of climate change. They are relatively cheap to implement and therefore a viable alternative where irrigation water is limited or too costly. They save energy and maintenance costs compared to pumping water, and they decrease the use of other valuable water sources like groundwater. Developmental and research policy strategies on water management in African local communities should focus on promoting and supporting these community-based water management systems because they are accessible and affordable, hence sustainable.

Keywords: Batswana indigenous water management systems, arid areas, North-West province

Introduction

Paterson (2002) and the Food and Agricultural Organization of the United Nations (FAO) (1995) indicate that due to increasing climatic changes,

drought and water scarcity will be one of the major threats to humankind during the 21st Century. This is due to the fact that the available water resources taken from streams, rivers and ground water will not be sufficient to cover the increasing needs of both rural and urban areas, especially in the arid and semi-arid areas of the world with less than 600 mm of rainfall per annum. For instance, most of the Southern African countries including South Africa have predominantly rural communities which are highly dependent on dry land agriculture. The economies of these local communities are at risk because they are highly vulnerable to shifts in seasonal climatic patterns (Wilson, 2004; Mangold, 2001; Peterson, 1996).

Patati (2000) notes that the issue of water management in developing countries touches upon core differences between western scientific thought and indigenous knowledge systems and has the potential to illustrate the real life context to which international debates apply. According to United Nations Educational Scientific and Cultural Organization (UNESCO) (2007) poor local communities in the developing world, especially in Africa face at least four types of water-related challenges:

- (1) Indigenous cultural and spiritual understandings about water are misunderstood or simply ignored by the dominant Western societies;
- (2) Indigenous communities are not included meaningfully in water policy and planning processes;
- (3) Customary access and rights to water is seldom recognized by the state authorities that now control indigenous areas; and
- (4) Waterbodies that are critical to cultural and physical wellbeing are being polluted by outside forces beyond their control.

Singh (2001) adds that at both the national and international levels, indigenous communities are seldom recognized as legitimate stakeholders in water-related policy decisions, and typically lack the institutional structures and capacities to promote their water interests to the outside world. Therefore, exploring the interlinkages between global water issues and Indigenous Knowledge systems (IKS) is a key for developing sustainable solutions to pressing water resource challenges in the continent.

Indigenous knowledge (IK) in this study is, broadly defined as the knowledge and skills used by local people to make a living in a particular environment (Warren, 1991). In African indigenous communities this

environmental knowledge was transmitted through practical work under the direction of respected elders and other community knowledge holders.

During the past decade, the policy climate has shifted in favour of a more open and honest dialogue among indigenous representatives and between the indigenous participants as a group and the many other water stakeholders. The World Water Forum in Kyoto (2003) was a landmark in inviting input from Indigenous Peoples, and the result was the Indigenous Peoples Kyoto Declaration. The World Water Forum in Mexico City (2006) and Istanbul (2009) also invited Indigenous inputs. The water issues confronting poor local communities all over the world have become increasingly critical with the changing climate directly impacting these communities along different vulnerable environments. Along with issues of access and water rights, and pollution from mining and industry, the added impacts of climate change have elevated water management to a life and death challenge for communities and entire cultures.

Peterson (1996) looks at water management as the activity of planning, developing, distributing, managing, and optimum use of water resources under defined water polices and regulations. This may include:

- management of water treatment of drinking water, industrial water, sewage or wastewater;
- management of water resources;
- management of digesting protection;
- management of irrigation; and
- management of the water table.

African indigenous communities have for centuries developed practical ways for society to live in a sustainable manner with nature, in full respect with the diversity of agro-ecological climatic zones, even those that seem the most difficult and inhospitable. For instance, in most African communities including South Africa, there are various types of methods of water harvesting, characterized by: use of local resources and technology; community-based operation; community-driven decentralized water management; and sustainable conservation and use of natural resources.

Wilson (2004) shows that for centuries, the African traditional line of thinking was that soil, water, forest, wildlife and the whole environment was the common asset of the local people bestowed by the Almighty to be managed as a “trust”. This was the commonly accepted world view. This

age-old balance has been disturbed at an accelerating pace in the last 200 years. The European colonisers brought the idea that nature was to be “exploited” and undermined the attitude of responsibility for nature. The modern state (colonial or independent) dispossessed the rural communities of their rights and responsibilities, rivers, either legally (tree felling licenses, water rights) or illegally (corruption). Western education convinced the people that indigenous traditions and oral knowledge were the causes of poverty.

It on the basis of this consideration that Paterson (2002) argues that the issue of water management touches upon core differences between western scientific thought and indigenous knowledge systems and has the potential to illustrate the real life context to which international debates apply. Exploring the inter-linkages between global water issues and Indigenous Knowledge systems is a key for developing sustainable solutions to pressing water resource challenges.

This chapter argues that the common approach to the water shortage problem in most of the arid and semi-arid areas of South Africa including the North-West province has been to emphasize western technologies over indigenous forms of water management. There has not been a serious consideration on the part of government and other development agencies to explore the potential benefits of community-based water management systems including water harvesting which have evolved with the local environment and are specifically adapted to local conditions. In this chapter indigenous water harvesting includes all local methods and techniques of concentrating, storing and collecting runoff water in different mediums, for domestic or agricultural users (Siegert, 1994).

Kaya and Koitsiwe (2007) show that the Batswana as the predominant African ethnic group in the North-West province (over 70% of the provincial population) possess accumulated practical knowledge of managing their arid environment through experience and productive activity. They have over the years developed complex systems of agriculture, water, vegetation and wildlife management that have survived the test of time and the vagaries of the arid environment. They have over time used various sustainable water management methods and techniques which enabled them to ensure food security, diversification of crop production and preservation of animals and crop species. The drylands of the province are characterised by a low annual rainfall concentrated to one or two short rainy seasons per year. The rainy

season usually occurs from October to March. Rainfall varies from 400 - 600 mm in the semi-arid areas (Root, 2000; Easterling, 2000).

The chapter discusses the following aspects based on the study on Batswana indigenous water management systems in arid areas of the North-West province: Batswana indigenous water harvesting methods and techniques for drought mitigation; and the benefits and limitations of Batswana indigenous rainwater and flood water harvesting.

Methodology

This study followed a participatory and case study approach in order to have an in-depth understanding of the research problem, that is, Batswana indigenous water management systems in the North-West province. Bessette (2000) defines participatory research as a research method in which the researcher works with the group under investigation; that is to say that she or he takes a lead from the group on what is to be studied, where, when, and how. The researcher shares useful research skills with the group, which is then enabled to undertake further research autonomously.

Burns (2007) explains that the development paradigms of the 1960s and 1970s derived from the legacy of colonial rule, especially the planning systems of the late 1930s and post-WW2 period. The conception was top down (development was something governments did for or to people). There was little stakeholder involvement of those undergoing “development”, a fact which must rank high among the causes of the failures of development to improve the lives of the majority poor of the “developing” world. Participatory development arose as a reaction to this realization of failure, popularized particularly by Conway and Chambers (1992) and more recently by Korten (1996).

The study realizes, however, that as with all methods, the merits of the participatory approach to research vary with the research situation and the practitioner. At its best, the process can be liberating, empowering and educative, a collegial relationship that brings local communities into the policy debate, validating their knowledge. At its worst, it can degenerate into a process of co-optation of local communities into an external agenda, or an exploitative series of empty rituals imposing fresh burdens on the community’s time and energy and serving primarily to legitimize the credentials of the implementing agency as “grassroots oriented”. While

participation must be integral to the research process, it must be understood and practiced as a genuine process.

The study concentrated on the Bophirima Region, which includes areas such as Ganyesa, Kuduman, Taung, Toska and Morokweng, among others. The dominant Batswana ethnic groups in the region are the Batlhako, Batlokwa, Batlhwaro, and the Batlhaping. Bophirima Region is the driest region in the province with an annual rainfall of less than 600 mm. Conrad (2002) describes a case study research strategy in the following words:

Rather than using large samples and following a rigid protocol to examine a limited number of variables, case study methods involve an in-depth, examination of a single instance or event. They provide a systematic way of looking at events, collecting data, analyzing information and reporting the results. As a result the researcher may gain a sharpened understanding of why the instance happened as it did, and what might become important to look at more extensively in future research.

The study was predominantly qualitative. Jick (1993) defines qualitative research as concerned with non-statistical methods of inquiry and analysis of social phenomena. It draws on an inductive process in which themes and categories emerge through analyses of data collected by such techniques as interviews, observations, videotapes, and case studies. Samples are usually small and are often purposively selected. Qualitative research uses detailed descriptions from the perspective of the research participants themselves as a means of examining specific issues and problems under study.

Qualitative research methods such as key informant interviews, focus group discussions and participant observations formed the core of the data collection methods. 200 community members, mostly community knowledge holders made up of 120 men and 80 women of 45 years of age and above, participated in the purposeful sample for this study. Jackson (2002) describes a purposive sample in the following words:

A purposive sample is a sample selected in a deliberative and non-random fashion to achieve a certain goal. In a focus group, for example, you may want to consciously seek out respondents at both ends of a spectrum (as well as some in the middle) to insure that all

viewpoints are adequately represented. You might also preferentially recruit subjects who have the best knowledge and experience in an area.

Both male and female community members from various parts of the municipal district were included in the study in order to provide both gender sections of the local communities an equal opportunity to participate in the study. According to the community knowledge holders such as traditional leaders and farmers, most of the small-scale agricultural activities including domestic work in the study area were done by women.

Key-informants such as community and project leaders, as well as community development workers were interviewed at all levels of the research project as a means to gain in-depth qualitative information. This approach is a traditional method used by social scientists including anthropologists, for extracting community knowledge through well-placed individuals in the study community. It is part of the ethnographic approach, often being used in situations where access to official records or data is weak or non-existent. Where official records exist, it is used as a means to gain further insight by questioning key people about a specific phenomenon.

Focus group discussions were conducted with a selected group of 6 - 10 community members including project members. A focus group discussion is a semi-structured interview in which the discussant knows in advance the topics to be covered. The people included were known to have been involved in specific experiences related to the research problem. Focus group discussions are different from other types of group interviews in that they focus on a particular topic and they rely on group dynamics in order to generate data. The interaction is mainly between group members themselves and not between the members of the group and the interviewer. Group interaction is used in this type of research to generate data and as a source of data analysis. The assumption is that there is an interaction that is productive in widening the range of responses, in activating forgotten details of community or cultural experience/knowledge and in releasing inhibitions that are part and parcel of interviews with individuals.

Qualitative data in the form of audio taped interviews were transcribed and translated from Setswana into English. Interview and participant observation notes were typed and a content analysis conducted. Carley (1999), Gottschalk (1995) and Carney (1992) explain content analysis in research as a research tool used to determine the presence of certain words or

concepts within texts or sets of texts. Researchers quantify and analyze the presence, meanings and relationships of such words and concepts, then make inferences about the messages within the texts, the writer(s), the audience, and even the culture and time of which these are a part.

Texts can be defined broadly as books, book chapters, essays, interviews, discussions, newspaper headlines and articles, historical documents, speeches, conversations, advertising, theatre, informal conversation, or really any occurrence of communicative language. Texts in a single study may also represent a variety of different types of occurrences, such as Palmquist's 1990 study of two composition classes, in which he analyzed student and teacher interviews, writing journals, classroom discussions and lectures, and out-of-class interaction sheets. To conduct a content analysis on any such text, the text is coded or broken down, into manageable categories on a variety of levels – word, word sense, phrase, sentence, or theme – and then examined using one of content analysis' basic methods: conceptual analysis or relational analysis. In this study validation checks were conducted through all phases of the research to ensure the highest level of data accuracy. Information which was unclear or missing was clarified or collected by returning to informants and reviewing issues and concepts.

The following sections present and discuss the research findings.

Presentation and Discussion of Research Results

Batswana Indigenous Water Harvesting Methods and Techniques for Drought Mitigation

The researchers asked the respondent community members to indicate the different methods and techniques used traditionally by the local people to harvest water for drought mitigation. These community-based methods and techniques are discussed in detail below.

Interviews with community knowledge holders and IKS practitioners showed that rainwater and floodwater harvesting as an indigenous water management technique and strategy for drought mitigation has been practised by the Batswana for centuries.

Traditionally, among the Batswana, and as in other parts of Africa, “runoff water was collected from roofs or ground surfaces (rainwater harvesting) as well as from seasonal streams (flood water harvesting)”. The “harvested runoff involved different forms of surface runoff (sheet, rill, and

gully and stream flow) and the storage was either done above ground, in different systems of tanks, reservoirs or dams, or below ground in the soil". The methods for harvesting runoff water and managing it could be as follows (cf. Water Resources Management in Smallholder Farms n.d.).

- (i) the source of the surface water could be external or within-field catchments, e.g. sheet, rill, gully or stream flow;
- (ii) the method of managing the water through maximising infiltration in the soil, storing water in tanks/ dams, inundating crop fields with storm floods; and
- (iii) the use of water for livestock, households, crop production and erosion management.

As in other parts of Africa, Batswana indigenous water harvesting methods and techniques operated at different scales, i.e. household, field, catchment, and could affect water availability at downstream locations and activities. The shifts in water flows as a result of water harvesting also impacted on agricultural and domestic water use in these locations. This is due to the fact that "natural ecosystems in a landscape, like wetlands and swamps, depend on a certain inflow of surface overland flow, and can therefore be affected by water harvesting interventions upstream". At the same time "wetlands are in themselves a form of water harvesting that can be used for water treatment and as a source of domestic and agricultural water" (Auerbach, 1998; cf. Water Resources Management in Smallholder Farms n.d.).

The following section is devoted to Batswana indigenous water management techniques identified in the study. Examination of secondary sources showed that these water management techniques were also practised by other ethnic groups in the Southern Africa region living in similar arid and semi-arid conditions namely the Karanga and Ndebele.

Runoff Water Farming

In-situ water conservation systems were by far the most common among the Batswana. It is also within this category that most of the Batswana indigenous water management systems could be found. This also involved the management of negative side-effects of rain-water. Similar to other parts

in Africa, the survey revealed the following techniques (cf. Water Resources Management in Smallholder Farms n.d.).

(i) Pitting techniques, where shallow planting holes (< 25 cm deep) were dug for concentration of surface runoff and crop residue/manure. The pitting technique has proved to improve millet yields, especially during low rainfall years.

(ii) Construction of moisture retention terraces and ditches was another common Batswana indigenous water management technique. The terraces were made by digging a trench, normally along the contour, and throwing the soil upslope to form an embankment. This had a very significant effect on reducing soil erosion in areas with relatively steep slopes (< 20 %). Nissen-Petersen and Lee (1990) present evidence from other African communities in Southern Africa suggesting that the adoption of the terrace system played an important role in reducing land degradation in the period of rapid population growth in these local communities.

The study found that in some arid areas of the Western District (Bophirma) of the province, mobilisation campaigns were used to rehabilitate degraded lands by constructing retention ditches and stone terraces. Furthermore, micro-basins (roughly 1 m long and < 50 cm deep) were also constructed along the retention ditches for tree planting. These retention ditches, which prevented large volumes of surface runoff from flowing down the steep escarpments, contributed to the revival of natural springs which according to the local communities had dried out, probably due to severe upstream deforestation over the years.

(iii) According to community knowledge holders in the Ganyesa area, in low rainfall areas, local small-scale farmers developed a highly specialised water harvesting system. The cropland was prepared in multitudes of circular depressions (3 - 4 m in diameter and < 1 m deep) where a variety of crops were inter-cropped. This was done in such a way that there was literally no run-off from the fields. In good years, all crops were harvested. However, the kind and amount of crop yield decreased with the reduction of the seasonal rainfall depths. The decline/loss of yield followed a pattern or sequences like maize, then sorghum followed and pigeon pea.

The Use of Flood Irrigation

The survey found that in some areas of the Western District (Bophirima) of the province, flood irrigation was used in alley cropping systems with sorghum and *Acacia saligna*. As in other part of the continent, the basic rationale was the capturing of storm-floods from rainfall-rich highland areas, which were then diverted into levelled basins in the dry lowlands. For example, the following indigenous techniques were used in harvesting floodwater for agriculture and other uses (cf. Water Resources Management in Smallholder Farms n.d.).

(i) Construction of embankments for conveying storm-water. These were built by shovelling the sandy soils using animal traction. The maintenance of these embankments was very labour intensive, and hence was done communally.

(ii) Gully reclamation for productive purposes was practised among the Batswana in the Western District with favourable agronomic results including the growing of various crops, but with complex socioeconomic implications. According to community knowledge holders, the objective was to privatise sections of gullies, where the households involved in gully reclamation could also have exclusive rights to cultivation in the reclaimed sections. However, due to unclear land tenure, the reclaimed gully could not be privatised because it brought conflicts between different farmers, families and clans over the land use rights, and hence it remained under communal ownership (cf. Water Resources Management in Smallholder Farms n.d.).

Indigenous Storage Irrigation Techniques

Indigenous water harvesting systems with storage for supplemental irrigation were common among Batswana local communities in the arid areas of the Western District of the Province. It was not uncommon to find micro-dams and farm ponds for storing water, usually located downstream in watersheds. The water was predominantly used for livestock and to cover household needs. This study found that local farmers used earth dams for irrigation (using buckets) of small vegetable gardens (< 0.25 ha). This shows a very important character of storage water harvesting structures, namely that they generally served multipurpose uses. Interviews with community knowledge holders indicated that local farmers first of all prioritised domestic water uses

before considering supplemental irrigation. Their choice of small vegetable gardens when considering irrigation was logical, because the water generally had to be lifted from the earth dam/farm pond to the crop field, which was very labour intensive (cf. *Water Resources Management in Smallholder Farms* n.d.).

Indigenous Harvesting of Fog and Dew

Agromisa (1997) defines harvesting dew as the deposit of water droplets on objects, the surface of which is sufficiently cool, generally by nocturnal radiation, to bring about the direct condensation of water vapour from the surrounding air. Allen (1990) shows that dew formation is favoured by a relative humidity at sunset of at least 75 %, wind speed less than 3 m/s and clear skies. The effect of dew formation is strongest in valleys, as in mountainous areas where the cooling air masses become heavier, it flows to the valley floors, where they continue to cool down, eventually leading to dew formation.

The study found that under specific environmental conditions fog and dew were harvested by local community members and yielded substantial amounts of water which could be used for domestic purposes, livestock, growing of trees, and crops. In order to supplement the moisture collected by plants themselves, artificial surfaces were exposed including netting-surfaced traps.

Benefits and Limitations of Batswana Indigenous Rainwater and Floodwater Harvesting

The study showed that African indigenous rainwater and floodwater harvesting techniques have the potential to increase the productivity of arable and grazing land in arid and semi-arid areas by increasing the yields and by reducing the risk of crop failure. They also facilitate reforestation, fruit tree planting or agroforestry. With regard to tree establishment, water harvesting could contribute to the fight against desertification in the arid areas of the province. Community knowledge holders in the Bophirima District of the province explained that rainwater harvesting techniques are relatively cheap to implement and could therefore be a viable alternative where irrigation water from other sources was not readily available or too costly for poor African communities. Unlike pumping water, water harvesting saves energy

and maintenance costs. Using harvested rainwater also helps in decreasing the use of other valuable water sources like groundwater.

FAO (1995) states that as part of interfacing modern and African indigenous technologies, modern technologies such as Remote Sensing and Geographical Information Systems could help in the determination of areas suitable for water harvesting. However, Nissen-Petersen and Lee (1990) argue that although these indigenous methods and techniques of water management can increase water availability, the climatic risks still exists. In years with extremely low rainfall, they cannot compensate for the shortage. Certain successful indigenous water harvesting techniques were often based on specific local farmers' experience including trial and error rather than on scientifically well-established techniques, and can therefore not be reproduced easily. Furthermore, most western-based agricultural extension services have often limited experience with such indigenous techniques. Moreover, disadvantages were the possible conflicts between upstream and downstream users, and a possible harm to fauna and flora adapted to running waters and wetlands.

Conclusion

The study demonstrated that African local communities like the Batswana in South Africa, had over the years before the coming of colonialism and western influence developed their own water management systems to mitigate and adapt to climate changes. These local community-based knowledge systems and technologies remain untapped although they could form best practices for other areas with similar conditions. The chapter argued that the current developmental focus in water resources management in the province and country has to a large extent focused on large scale, downstream located systems, like irrigation schemes.

African small-scale farmers need support from modern extension services to improve their indigenous water management systems to meet the current challenges of climate change and other environmental disasters. The existing developmental efforts in the country and the province on water management systems are scattered and not properly coordinated to support specific local farming systems. Research has to be conducted on farms, addressing different scales (field, hill slope, community, and watershed).

Furthermore, this chapter suggests that indigenous water harvesting systems cannot be an isolated effort within the agricultural development

system. It should be seen as a catalyst for improving and promoting the existing indigenous agricultural production systems. As in other parts of Africa, a major challenge, however, in promoting the African indigenous water management systems for agriculture, is “the critical issues of land tenure on a watershed scale when introducing gravity-fed water harvesting systems”. Policies, however, are lacking to “properly address the complex upstream and downstream conflicts that could evolve from intensified tapping of surface waters produced upstream” (cf. Water Resources Management in Smallholder Farms n.d.).

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Batswana Indigenous Knowledge of Medicinal and Food Plant Uses for Sustainable Community Livelihood

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Focused on Batswana indigenous knowledge of plant species for medicinal and food uses, this participatory research study shows that the Batswana knowledge holders have a rich indigenous knowledge about the plant species diversity of their environment including community uses of the plant species. The sustainable utilization of these indigenous natural resources is governed by certain socio-cultural protocols which include the veneration of ancestors. The study recommends further research that includes the validation of the already documented IK of the regional biodiversity; the developing of conservation mechanisms that include the documentation of indigenous plant species; as well as the fostering of mechanisms that protect this knowledge and plant species from exploitation by outsiders.

Keywords: Batswana, indigenous knowledge, medical and food plant uses, sustainable community livelihood

Introduction

Kokwaro (1994) states that since ancient times plants have been an indispensable sources of both preventive and curative traditional medicine preparations for human beings and livestock. Some of the plants have been

used for both food and medicine. “Historical accounts of traditionally used medicinal plants depict that different medicinal plants were in use as early as 5000 to 4000 BCE in China, and 1600 BCE by Syrians, Babylonians, Hebrews and Egyptians. Most of the indigenous knowledge, from these earliest times, is also linked with the use of traditional medicine in different countries” (Aman, 2000; Adams, 2000; cf. Lulekal *et al.* 2008).

Saray (2001) and Davis (1998) indicate that the knowledge of and uses of specific plants, insects and animals for public health care in African communities is an important component of African indigenous knowledge systems and culture. Africa has a wealth of biological diversity from which to collect efficacious plants, animals and insects for food and nutritional security. African lowlands, highlands, inland lakes and variable climatic conditions produce a multitude of biotopes. This indigenous knowledge plays a crucial role in the public health care of African local communities in the absence of adequate government health care services.

The World Health Organization (2002) defines public health care as an aspect of health services concerned with threats to the overall health of a community. It includes surveillance and control of infectious diseases and promotion of health behaviours among members of the community. Public health care promotes not simply the absence of disease but mental, physical, and emotional well-being of the community.

The term Indigenous Knowledge Systems (IKS) refers to a distinctive body of knowledge, innovations and practices that have been developed over many generations outside the formal educational system, and that enable communities in their specific natural and cultural environments to survive (Mascarenhas, 2004). Furthermore, the World Bank (2004) elaborates that Indigenous knowledge systems (IKS) is a systematic body of knowledge acquired by local people through the accumulation of experience, informal experiments and intimate understanding of their natural and cultural environment. In this discussion IKS refers to the knowledge and practices associated with properties of natural materials especially plant species for medicine, food and nutrition.

According to Lama and Ghimire (1996) traditional medicine refers to any ancient, culturally based healthcare practice different from scientific medicine that is commonly regarded as indigenous, unorthodox, alternative or folk and a largely orally transmitted practice used by communities with different cultures. World Health Organization (WHO) (2010) also defines traditional medicine as “health practices, approaches, knowledge and beliefs

incorporating plant, animal and mineral based medicines, spiritual therapies, manual techniques and exercises applied to treat, diagnose and prevent illnesses or maintain well-being” (cf. Lulekal 2008).

Traditional medicine encompasses a great variety of methods of diagnosis and treatment, including physical, mental and spiritual therapies (UNESCO, 1997). The application of such knowledge, practices and methods is largely influenced by the culture and belief systems dominant in a particular local community to the extent that they may be ineffective when applied in a different socio-cultural context.

Lamabert and Srivastava (1997) add that beside their use in fighting various ailments at local level “different medicinal plants are used as export commodities, which generate considerable income. These plants are normally traded in dried or freshly preserved form as whole and their global markets are found in China, India, Germany, France, Italy, Japan, England and USA. Currently, a large number of medicinal plants have found their way as raw materials into products of the modern bio-pharmaceutical industry” (cf. Lulekal 2008).

Anand (2005) and Shangamu (2003) show that the Maasai people of East Africa (Tanzania and Kenya) have for centuries due to isolation and limited accessibility to modern medical care systems, depended on herbal medicine. They have accumulated knowledge of herbs that can be used as remedies for many conditions. “The Maasai use herbs, bark and roots which are prepared in different ways: some are boiled as soup that is drunk in order to improve the condition of the stomach and the blood; others are used as drugs derived from trees and shrubs for curing ailments such as gonorrhoea, stomach infections, throat problems, pregnancy disorders, tooth problems, eye infections, children’s diseases, colds, swollen legs and painful joints. For example, the herb *Acacia nilotica* in the Maasai language *olkiloriti*, is taken as a digestive, excitant used to prevent hunger and even thirst. Maasai accounts show that warriors before going on raids took *olkiloriti*. It was also reputed to prevent fatigue and fear” (cf. Sindiga Indigenous (Medical) Knowledge of the Maasai n.d.).

“This rich indigenous knowledge was passed from one generation to another. It was the duty of every Maasai child to learn about the medicinal value of herbs as he or she grows up. Teenage boys were taught about all the grasses on the range. Traditionally, boys were assigned the task of looking after small stock (goats and sheep) around the homesteads. In the process, they also picked up the knowledge of herbal medicines used in the home.

Girls received their knowledge of herbal medicines from their mothers and grandmothers, with whom they spent a lot of time” (Saifa, 2004; cf. Sindiga Indigenous (Medical) Knowledge of the Maasai n.d.).

Van Wyk, Van Outdtshoorn and Gericke (1997) express the concern that despite the enormous richness in indigenous plant species in South Africa, relatively few of these indigenous natural resources are economically utilized by local communities for poverty alleviation including income generation. Indigenous medicinal plants are used by more than 60% of South Africans in their health care, nutritional needs or cultural practices. Approximately 3,000 species are used by an estimated 200,000 indigenous traditional healers. However, due to urbanization, a large informal trade business has been established with medicinal plants. Unfortunately, “utilization of the plants has depleted the wild populations, resulting in many plant species being considered vulnerable, and being lost from their natural habitat. Raw materials of medicinal plants can be delivered in sustainable quantities” (Dash, 2004; Venter and Van den Heever, 1998; cf. Coetzee *et al.* 1999).

De Klerk (2004) and Sarkar and Margules (2002) indicate that in South Africa, African local communities have a long history of using traditional medicinal plants for combating various ailments. Plant remedies are still the most important and sometimes the only source of therapeutics for nearly 80% of the population in African communities. The current loss of medicinal plants in the country is due to natural and anthropogenic factors links with the missing of valuable indigenous knowledge associated with the plants. This strong link suggests a need to conduct ethno-botanical research and to document the medicinal plants and the associated indigenous knowledge. Such studies are useful to identify threatened plants and to take appropriate conservation measures (Low and Rebelo, 1996).

This chapter concentrates on the Batswana indigenous knowledge on plant species for medicine, food and nutrition. The researchers are based at the North-West University in the North-West province of South Africa. The Batswana are the predominant African indigenous ethnic group in the North-West province in South Africa. They are composed of various ethnic groupings. Some of them are found in both South Africa and Botswana. Some of the Batswana ethnic groupings found in the North-West province and their locations in brackets, are: Barolong (Mafikeng), Bafokeng (Phokeng), Bakgatla (Moruleng), Batlhaping (Taung), Bahurutshe/Batshweneng (Lehurutse), Batlokwa (Tlokweg) and Baphiri (Mabalstaad).

In recent years, there has been an increasing interest with regard to Botswana indigenous knowledge on medicinal and food plant species for both sustainable community livelihood and commercial purposes. This interest has also brought about debates regarding intellectual property (IPR) and community resource protection and rights. This situation is rampant where more than one community may hold the same medical knowledge which raises the issue of geographical or historical locality and priority. For example the use of certain plant derivatives, which is a common denominator in most herbal preparations in different African indigenous communities in South Africa, presents serious problems when it comes to attribution of ownership. Thus the multiplicity of forms of possession of traditional medicines makes it particularly hard to apply existing IPRs or to develop *sui generis* regimes.

Mander, Crouch, McKean and Nicholas (1995) show that the Botswana have been in contact with their rich plant and animal biodiversity for a very long time and have over time used their IK of this biodiversity for sustainable community livelihoods in terms of food, medicine, shelter, and fuel. This knowledge system has been transferred from generation to generation for millennia. Biodiversity describes the variety of life in an area, including the number of different species, the genetic wealth within each species, the interrelationships between them, and the natural areas where they occur (Takacs, 1996).

Nuri (2002) argues that despite this enormous richness in indigenous biologically diverse species, especially plant species in the North-West province, relatively few of these indigenous natural resources are currently economically utilized. Weisheit (2003), Reinheit and Coetzee (2002) and Venter and Van den Heever (1998) indicate that only a few of the plant species are used as edible food material. The leaves and roots of edible plants have a high nutritional value and can play an important role in the prevention of malnutrition in rural areas. Deliwe (1998) emphasizes that “the utilization of South African indigenous flora can only be successfully explored if the existing indigenous knowledge of the inhabitants is documented and made available to science and development” (R&D; cf. Coetzee *et al.* 1999). The following aspects are discussed in the chapter: the socio-cultural protocols associated with Botswana indigenous use of medicinal, food and food plants; and examples of Botswana medicinal and food plant uses.

Methodology

This chapter is based on a study on Batswana indigenous knowledge of plants species for medicine and food uses conducted in the North-West province, South Africa. Taking into consideration the community-based nature of indigenous knowledge systems (IKS) the study followed participatory and multi-disciplinary approaches.

Park (2006) defines participatory research as a research activity in which ordinary people address common needs arising in their daily lives and, in the process generate knowledge. Participatory research differs from basic and applied social science research in terms of people's involvement in the research process, integration of action with research and the practice-based nature of the knowledge that is entailed. It sets itself apart even from other forms of action-oriented research because of the central role that the community practitioners play. Participatory action-minded researchers with technical background often get involved in this process but mainly as facilitators.

Using this approach Batswana community knowledge holders and IKS Practitioners such as traditional healers, farmers, traditional midwives, community elders and leaders in the study communities were actively involved in the whole research process. Their views were sought in all stages of the research including selection of study cases and interpretation of the data collected. The study was conducted among the following Batswana tribal grouping in the North-West province, South Africa: Barolong, Baphalane, Baphiri, Bakgatla, Batlhaping, Bakubung, Batlokwa, Bahurutshe, and Batlhako.

In order to have a comprehensive understanding of the research problem and taking into account the holistic nature of IKS and traditional medicine, researchers from both the natural (biology, natural resource management) and social sciences (sociology, social work, etc.) were involved in the research process.

In consultation with community leaders, elders and other key persons in the district municipalities a purposive sample of 200 respondents (150 women and 50 men) participated in the study. Cohen and Manion (1999) define a purposive sample as a sample selected in a deliberative and non-random fashion to achieve a certain goal. In a focus group, for example, you may want to consciously seek out respondents at both ends of a spectrum (as well as some in the middle) to insure that all viewpoints are adequately

represented. You might also preferentially recruit subjects who have the best knowledge and experience in an area.

In this study women were given a high representation in the sample because according to the community leaders, they were the main knowledge holders of the major activities of community life such as agriculture, health care, food security, and natural resource management. They had a very wide indigenous knowledge of medicinal and food plants.

In order to have the maximum participation of the community members in the research process the study was conducted in the local knowledge of Setswana. Qualitative research methods such as key informant interviews, focus group discussions and participant observations formed the core of the data collection methods. These qualitative field methods were used to gather in-depth information on the study population's cultural attitudes and opinions related to the various aspects of the research problem. Key informants such as traditional healers, farmers, traditional midwives, heads of households (male and female) and community elders (male and female) were interviewed at all levels of the research process as a means to gain in-depth qualitative information.

This approach is a traditional method of social scientists for extracting cultural knowledge through well-placed individuals in the society. It is part of the social science approach, often being used in situations where access to official records or data is weak or non-existent. Where official records exist, it is used as a means to gain further insight by questioning key people about their modes of life or specific social problems. Key informant interviews consisted of asking questions that are mainly semi-structured or open, allowing detailed, full answers from respondents. This approach contrasts with quantitative questionnaires which allow only controlled and structured responses within narrow parameters. Focus group discussions were also conducted with randomly selected groups of 6-10 community members in the study areas.

A focus group discussion is a semi-structured interview in which the discussant knows in advance the topics to be covered. The people included were known to have been involved in a particular experience related to the research problem. Focus groups discussions are different from other types of group interviews in that they focus on a particular topic and they rely on group dynamics in order to generate data. The interaction is mainly between group members themselves and not between the members of the group and the interviewer. Group interaction is used in this type of research to generate

data and as a source of data analysis. The assumption is that there is an interaction that is productive in widening the range of responses, in activating forgotten details of cultural experience/ knowledge and in releasing inhibitions that are part and parcel of interviews with individuals (Vestra, 2003).

Qualitative data in the form of audio taped interviews were transcribed and translated from Setswana into English. Interview and participant observation notes were typed and a content analysis conducted. Cohen and Manion (1999) explain that in content analysis researchers/ evaluators classify key ideas in a written communication, such as a report, article, or film. Evaluators can do content analysis of video, film, and other forms of recorded information, but in this chapter, we focus on analyzing words. Here is a formal definition of content analysis: it is a systematic research method for analyzing textual information in a standardized way that allows evaluators to make inferences about that information. Another expression of this is as follows: "A central idea in content analysis is that the many words of the text are classified into much fewer content categories".

The classification process, called "coding", consists of marking text passages with short alphanumeric codes. This creates "categorical variables" that represent the original, verbal information and can then be analyzed by standard statistical methods. The text passages can come from "structured interviews, focus group discussions, case studies, open-ended questions on survey instruments, work papers, agency documents, and previous evaluations". There is a large quantity of written material that evaluators typically collect during a project, especially when it comes from diverse and unstructured sources.

To classify a document's key ideas, the researcher/ evaluator identifies its themes, issues, topics, and so on. Content analysis can go further if the researcher/ evaluator counts the frequency of statements, detects subtle differences in their intensity, or examines issues over time, in different situations, or from different groups. Vestra (2003) defines quantitative data as information based on numbers or statistics that describes programs, activities and populations. The data come from closed-ended questions, random samples, and counting. In this research study quantitative data from the questionnaires were checked, coded and were analyzed using SPSS/PC+. The following sections discuss the research findings.

Presentation and Discussion of Research Findings

Batswana Indigenous Knowledge on Medicinal, Food and Plant Species and Community Uses

The community knowledge holders and IKS practitioners through face to face interviews and focus group discussions were asked to identify the different types of medicinal and food plant species found in their respective local communities and their community uses. Table 1 provides examples of Batswana indigenous knowledge on medicinal and food plant species and their community uses. The main published source used for the relevant information, was P. Joffe's *Indigenous Plants: A South African Guide* (2005).

The Socio-Cultural Protocols Associated with Batswana Indigenous Use of Medicinal and Food Plant Species

The respondent knowledge holders and IKS practitioners were asked to stipulate any socio-cultural protocols associated with the use of indigenous plant species in the community. The following information was provided.

The Batswana like other African tribal groups within and outside South Africa have various socio-cultural protocols including rituals associated with the use of plant material for medicinal, and food purposes. The custodians of these knowledge systems and associated socio-cultural protocols were the traditional healers, and community elders (both men and women). For instance, interviews with these community knowledge holders indicated that based on certain cultural belief systems there were socio-cultural protocols including taboos which governed individual and community harvesting of certain plant species:

- (i) plants such as “*mmilo*”, “*moopyane*”, “*moretologa*”, “*leswama*” could not be cut for firewood because this could bring bad luck to the community, cause thunderstorms, and cows could bear male calves only. In the case of “*moselesele*” plant, the smoke from the firewood could affect babies mentally;
- (ii) “*mosettlha*” and “*motswere*” plants could not be harvested in summer because it could cause thunderstorms, heavy rains/floods with hail;

- (iii) “*lekgorokgoro*”, “*mogaba*”, “*mogonono*”, “*Tshuka Ya Poo*”, and “*seswagadi*” could not be harvested by women who had done abortion because their wound would not heal properly; and
- (iv) “*Ditantanyana*” could not be drunk by elders because it was only suitable for young children and babies to strengthen their bones.

The observation of socio-cultural protocols contributed greatly to the sustainable community use, conservation and protection of these plant species. According to the community knowledge holders the whole indigenous process of using community bio-diversity materials (both flora and fauna) could not be separated from the veneration of the ancestral spirits. These were believed to give effectiveness to the medicine and food plants taken. The veneration was also inspired by affection due to the bond which existed between the departed and the living. This was especially the case when the living have known the dead and had relations of affection with them while they were still alive. Van Pelt (1982) states that fear were also a motive for veneration.

Ranger and Kimambo (1972) elaborate that protection may be found in the observation of specific taboos associated with the specific plant material. Moreover, the precautions considered necessary when dealing with the custodians of these socio-cultural protocols such as traditional healers or priests come from the fear which is based on the specific mode of being of these persons. They are considered to be powerhouses of forces which may be helpful, but also belong to a different order of being, at least when they are performing their proper functions.

Table 1: Examples of Botswana Indigenous Knowledge on Medicinal and Food Plant Species and Community Uses

Setswana Name	English Name	Biological Name	Indigenous Uses
<i>Kgopane</i>	Spotted aloe	<i>Aloe greatheadii</i>	The leaves were used to treat wounds, sores and burns; roots treated soil binder in disturbed areas, e.g. mine dumps.
<i>Lerotho, Rothwe</i>	African Spider Flower	<i>Cleome gynandra – L</i>	The root were used to treat fevers; the root juice relieved scorpion stings; the leaves, were used as a vesicant and rubefacient in the treatment of rheumatism and leaf juice was a remedy for ear pain; the seeds were anthelmintic and rubefacient.
<i>Mmilo, mothwanyê</i>	Wild medlar	<i>Vangueria infausta</i>	The fruits are edible and fermented to beer. Medicinally, the roots and leaves were used as treatment for ringworms, pneumonia, or as a purgative. An infusion of the leaves is used for the relief of toothache
<i>Modutu</i>	White Stinkwood	<i>Celtis africana.</i>	The fruits are edible; the leaves are roots are edible and believed to increase sexual desire. The plant was also used to increase the fertility of livestock.

Setswana Name	English Name	Biological Name	Indigenous Uses
<i>Mohlakolo</i>	Blue Guarri	<i>Euclea crispa</i> <i>subsp. Crispa</i>	A bark and leaf were used to treat diabetes and prevent rheumatism; the root infusion was taken orally against epilepsy. The leaves bark and roots were used to treat chronic wounds and stomach-ache. The roots are boiled and administered to children orally to relieve constipation
<i>Mokgalo</i>	Buffalo-thorn	<i>Ziziphus</i> <i>Mucronata</i>	People eat the ripe fruits fresh or dried; grind them to a meal and cooked as a kind of porridge. During the Anglo-Boer War, roasted seeds were used as a coffee substitute by soldiers. Young leaves and shoots can be added to salads or cooked as spinach. Potent liquor is brewed from the fruits. Traditional remedies from leaves, bark and roots are made to treat dysentery, chest complaints and lumbago
<i>Mokwa,</i> <i>Morotōmadi</i>	Blood wood, paddle-wood	<i>Pterocarpus</i> <i>angolensis</i>	The bark and roots are made into remedies for treatment of ringworm, eye problems, and stomach problems and is known to increase the supply of breast milk. Women mix the red sap from the tree with animal fat to produce cosmetics for their faces and bodies.

Setswana Name	English Name	Biological Name	Indigenous Uses
<i>Mologa</i>	Lavender Fever Berry / Lavender Croton	<i>Croton gratissimus</i> var. <i>gratissimus</i>	Mologa is important for both animals and human lives. Remedies are prepared from various parts of the tree (leaves, roots, and bark) and used traditionally as therapeutic agents. The leaves are crushed and applied to body sores; liquid from crushed leaves is drunk to treat cold, influenza and even administered orally as a cure for fever; the leaves can also be dried, ground to fine particles and served as a very delicious tea. It is also believed that the leaves when mixed with water for bathing protect an individual against misfortunes. Livestock owners boil mologa and give it to their livestock to increase productivity i.e. produce more livestock.
<i>Monkgopo</i>	Naboom	<i>Euphorbia Ingens</i>	The leaves or roots are prepared into a remedy used to treat warts and chronic ulcers. It is also used to treat blood related diseases; the water from boiled leaves, bark or roots is used to clean decayed teeth.

Setswana Name	English Name	Biological Name	Indigenous Uses
<i>Mooka</i>	Sweet thorn	<i>Acacia karroo</i> <i>Hayne</i>	The sweet gum from the bark is eaten by both humans and animals; it is also used for making confectionary; the Sweet Thorn is used medicinally to produce a range of remedies to cure eye illnesses, wounds and cold; the leaves and roots are eaten to relieve stomach pains; when the leaves or roots are boiled, the water is gargled to treat throat infections. The leaves are fed to cattle as a treatment for tulip poisoning, an infection that results from the consumption of bulbous plants that belong to the genus <i>Homeria</i> . In arid areas, the plant is used as indicator of availability of water; flowers produce a lot of nectar and pollen for bee-farming.
<i>Mosêléšêlé</i>	Kalahari Christmas	<i>Dichrostachys cinerea subsp. Africana</i>	The plant is a source of nutrition (protein and minerals). The bark can be ground to produce very fine particles that are given to animals as a mineral supplement. Locally, the plant is used therapeutically in many different ways: the bark is boiled and drank as a remedy for treating dysentery, elephantiasis, snake-bite, leprosy, syphilis, gonorrhoea, anthelmintic infections; the resultant liquid from the bark when boiled can be used as a purgative, laxative, diuretic and used to wash the mouth to relieve toothache.

Setswana Name	English Name	Biological Name	Indigenous Uses
<i>Mosetha</i>	Weeping Wattle	<i>Peltophorum Africanum</i>	The roots are soaked in cold water and the liquid is used to wash wounds; the water could be used wash teeth to relieve toothache, gurgled to cure sore throat; the leaves and bark are soaked in water and drunk to eliminate intestinal parasites; used as a laxative against stomach related illness; the stem and roots are soaked in water and the liquid drunk to relieve diarrhoea and dysentery.
<i>Mothata</i>	Jacket-plum	<i>Pappea capensis</i>	Batswana women use the fruits to make jam, jelly, alcoholic beverage and vinegar. Edible oil is extracted from the seeds and used to lubricate guns, make soap to treat baldness and ringworms. The leaves are used to cleanse blood especially for women who had miscarriages. The roots or leaves when eaten increase libido.
<i>Mothware</i>	Wild Olive	<i>Olea europaeana subsp. africana</i>	Roots are used as purgative; leaves treat cough and colds; large amount of pollen and nectar make it popular with bee farmers; a tea is made from leaves; an ink is made from fruit juice; remedies are made as eye lotions and tonics to lower blood pressure improve kidney functions, sore throats; and treat diarrhoea.

Setswana Name	English Name	Biological Name	Indigenous Uses
<i>Motlhono</i>	Kei Apple	<i>Dovyalis caffra</i>	The fruits are tasty (slightly acidic), rich in Vitamin C, and can be eaten fresh or made into jam or jelly; young fruits are made into pickles; the fruit juice is mixed with porridge to make a kind of traditional pudding.
<i>Motsotsojane</i>	Crossberry	<i>Grewia occidentalis</i>	The sweet fruits are edible; they are often picked and stored for later use; when fruits are boiled in milk, they taste like milkshake; the fruits are made into juice which is drunk either fresh or fermented. Bruised bark soaked in hot water is used to dress wounds; roots or bark is used to treat bladder problems; a shampoo prepared from the crushed bark is used to prevent hair from getting grey.

Conclusion

The study showed that the Batswana in the North-West province had a rich and wide indigenous knowledge of their plant species diversity for medicine and food. The use of this knowledge and associated plant materials was governed by certain socio-cultural protocols. The observation of these socio-cultural protocols contributed greatly to the sustainable community use, conservation and protection of these plant species. In recent years, however, there has been an increasing interest and awareness in African indigenous knowledge with regard to the use of these medicinal and food plants for both sustainable community livelihood and commercial purposes.

The study recommends the following: further R&D including validation of the documented IKS on medicinal and food plant materials in the study communities; promotion and protection of this rich knowledge through documentation and incorporation into the school curriculum; more research to be done in order to identify the actual location of these indigenous plant species among the various Batswana communities. This will assist in developing mechanisms for protecting and conserving them for sustainable uses.

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Healer-Patient Relationship in the Bakgatla-Ba-Kgafela Indigenous Healing Systems



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The study examines healer-patient relationships in the indigenous healing system of the Bakgatla-Ba-Kgafela, one of the Batswana ethnic groups in the North-West province of South Africa. The majority of the respondent community members consult traditional healers. They indicate that qualities such as trust, respect and confidentiality play a central role in patient-healer relationships. These values help healers to recognize the dignity of their patients. Even so, there is a general acknowledgement of the fact that traditional healing systems have technological limitations when compared to modern scientific and technological healing systems. The study recommends that the training of traditional healers on issues of human rights will add to their fostering of trust and respect. It also recommends collaboration of practitioners of traditional and modern healing systems to enhance an understanding between the two healing systems and improve the quality of health care for patients.

Keywords: healer-patient relationship, Bakgatla-Ba-Kgafela indigenous healing systems, North West province.

Introduction

Traditional healing is the oldest form of structured medicine. A “structured medicine” is a medical system that has an “underlying philosophy and set of

principles by which it is practised” (cf. What is Traditional Medicine?). Later forms of medicine developed from this original system – Chinese medicine, Graeco-Arabic medicine, modern Western medicine. It was practiced as an integral part of semi-nomadic and agricultural tribal societies and archaeological evidence dates it back to around 6000 BCE. It may however be much older, with its stretching as far back as the last Ice-age.

According to the article, “What is Traditional Medicine?”, traditional healing practice is different from practices of other types of medicine in the following ways:

- It is holistic and understands the mind-body relationship. Just like a human being is an integrated entity and cannot survive in pieces and health is an integrated state of well-being of the whole body, ill-health cannot be treated efficiently by experts that treat specific organs or areas of the body in distinction to others. The natural harmony of the body can only be restored by an integrated and holistic approach.
- It uses natural methods of treatment, because these were the resources that have nurtured the human race – and in fact all life – since the beginning of time. Traditional Healing treatments are always integrated and involve a combination of approaches such as psychotherapeutics, herbal medicine, nutritional therapy and physical therapeutics.
- It is taught by traditional healers with many years of experience in the profession, by means of an “apprenticeship” that would take a minimum of 7 years, and usually much more. These days however most traditional healers have a combination of formal higher education as well as having served an extended period of training with an older and more experienced traditional healer.
- Traditional healers have strong ethical principles that they extend to all life. They believe it is their duty to foster life in all its forms and to alleviate suffering. They also believe that Nature’s laws must be obeyed in order to avoid decline and ultimate disaster.

The common principles of traditional healing has already been stated in the “four pillars” by Roman historian Pliny the Elder (23-79 AD.). He identified: “*Eruditio, Perspicacitas, Beneficentia et Caritas*”. In English this means: “learning, insight, goodwill and empathy”. These are the basic principles that should guide the traditional healer in all his or her actions. It is because of these principles that traditional healing was and still is, often referred to as “Wisdom Medicine” or “Wizard Medicine” in the sense of medicine applied by a “wise person” (<http://www.traditionalmedicine.net.au/tradheal.htm>).

On the issue of African traditional medicine diagnosis and treatment process and procedures Mainous, Goodwin and Stange (2004) indicate that the diagnoses and chosen methods of treatment rely heavily on spiritual aspects, often based on the belief that psycho-spiritual aspects should be addressed before medical aspects. This is based on the belief in most African cultures, that “nobody becomes sick without sufficient reason”. Traditional medical practitioners look at the ultimate “who” rather than the “what” when locating the cause and cure of an illness, and the answers given come from the cosmological belief systems of the people in a particular culture. Therefore, “rather than looking to the medical or physical reasons behind an illness, traditional healers attempt to determine the root cause underlying it, which is believed to stem from a lack of balance between the patient and his or her social environment or the spiritual world, not by natural causes” (cf. Traditional African Medicine).

According to Khanna (2008) natural causes are, in fact, not seen as natural at all, but manipulations of spirits or the gods. For example, sickness is sometimes said to be attributed to guilt by the person, family, or village for a sin or moral infringement. The illness, therefore, would stem from the displeasure of the gods or God, due to an infraction of universal moral law. “According to the type of imbalance the individual is experiencing, an appropriate healing plant will be used, which is valued for its symbolic and spiritual significance as well as for its medicinal effect” (cf. Traditional African Medicine).

When a person falls ill, a traditional practitioner uses incantations to make a diagnosis. “Incantations are thought to give the air of mystical and cosmic connections. Divination is typically used if the illness is not easily identified, otherwise, the sickness may be quickly diagnosed and given a remedy. If divination is required, then the practitioner will advise the patient

to consult a diviner who can further give a diagnosis and cure. Contact with the spirit world through divination often requires not only medication, but sacrifices” (cf. *Traditional African Medicine*; Kleinman and Benson, 2006).

In their discussion of traditional treatment, Ruiz-Moral, Perez Rodreguez, Perula de Torres, and de la Torre (2006) show that traditional practitioners use a wide variety of treatments ranging from “magic” to biomedical methods such as fasting and dieting, herbal therapies, bathing, massage, and surgical procedures. Migraines, coughs, abscesses and pleurisy are often cured using the method of “bleed-cupping” after which an herbal ointment is applied with follow-up herbal drugs. Animals are also sometimes used to transfer the illness to afterward. Some African culture healers also rub hot herbal ointment across the patient’s eyelids to cure headaches. A disease such as malaria is cured by both drinking and using the steam from an herbal mixture. Fevers are often cured using a steam bath. Also, vomiting is induced, or emetics, to cure some diseases. For example, among the Wazigua in Tanzania, raw beef is soaked in the drink of an alcoholic person to induce vomiting and nausea and cure alcoholism. Among the Ndorobo of East Africa, the traditional healers have been known to use the fat of a boa constrictor to cure gout and rheumatism. It also is thought to relieve chest pain when rubbed into the skin. Some healers employ the use of charms, incantations, and the casting of spells in their treatments. “The dualistic nature of traditional African medicine between the body and soul, matter and spirit and their interactions with one another are also seen as a form of magic” (Muya, 2005; cf. *Traditional African Medicine*).

Western science has, in the past, considered methods of traditional knowledge as primitive. Under colonial rule and apartheid in South Africa, traditional diviner-healers were outlawed because they were considered by many nations to be practitioners of witchcraft and declared illegal by the colonial authorities, creating a war against witchcraft and magic. During this time, attempts were also made to control the sale of herbal medicines (cf. *Traditional African Medicine*; Firenzuoli and Gori, 2007).

On the issue of payment procedures, Patterson, (2001) shows that traditional healers, like any other professionals, are rewarded for their services. In most African societies, the payment for a treatment depends on its efficacy. They do not request payment until after the treatment is given. This is another reason many prefer traditional healers to western doctors who require payment before the patient has assessed the effectiveness of the

treatment. The payment methods have changed over time, with many practitioners now asking for monetary payment, especially in urban settings, rather than their receiving goods in exchange, as happened formerly. He emphasizes the importance of traditional medicine in African community livelihood by stating that in Africa, the importance of traditional healers and remedies made from indigenous plants play a crucial role in the health of millions. According to the International Development Research Centre (IDRC) (2004) 85% of Africans depend on traditional medicine for primary health care. Patterson also argues that “the increasing dependence of African local communities on traditional medicine is not only due to the fact that it is cheaper and more accessible than modern medicine, it is also the issue of the healer-patient relationship” (cf. *Traditional African Medicine*).

Zunin (2005) emphasizes that the doctor-patient relationship is one of the most unique and privileged relations a person can have with another human being, and having access to a well-developed and effective association is important for the experienced and objective quality of health care. Yet, over the past few decades a number of cultural barriers and structural trends have converged, reducing the ability of patients to have this archetypal relationship with physicians and healers.

This chapter argues that there have been various approaches to the doctor-patient relationship. One of these approaches is the parsonian formulation based on the views of the sociologist Talcott Parsons (1902-1979). Parsons’s theorizing of the doctor-patient relationship was the first by a social scientist. His functionalist, role-based approach defined analysis of the doctor-patient relationship for more than twenty years. Typical of the structural functionalist paradigm, Parsons started out from the assumption that illness was a form of deviance or dysfunction. As such, it prevented the person from full operation in the system. For the system, however to function, the person in turn was in need of reintegration into the social organism. Since illness, or even feigned illness, caused people to withdraw from normal duties and work, it could be detrimental to the optimum functioning of the social order. Even so, in order to maintain the social order, it had to be allocated a legitimate space within the paradigm. To control this deviance and ensure that the system is maintained, the notion of a legitimized “sick role” developed. This made illness not permanent, but a transitional state back to normal role performance. In Western society, Parsons identified four norms that in his view governed the functional sick role. These are:

- (i) the individual is not responsible for their illness;
- (ii) exemption of the sick from normal obligations until they are well;
- (iii) illness is undesirable; and
- (iv) the ill should seek professional help (Hughes 1994).

For Parsons, the physician has the task of communicating these norms to the patient to not only control the illness but also the deviance. Physicians then are cast in the role of agents that ensure normative socialization. They need to act in the interest of society and the patient and not primarily in their own material interests. They had to be guided not by “personalized particularism” but by an “egalitarian universalism”. Parson has however been criticised for his approach – that he was “overly optimistic about the success of physician socialization to universalism and affective-neutrality”. Another criticism was that he mainly dealt with transitional illness and not chronic illnesses and disabilities where the sick role is permanent (Hughes 1994).

Critics such as Waitzkin (2000) and Freidson (1988) have also shown that there is a great deal of inter-cultural and inter-personal variation in sick roles and norms. The roles a specific culture ascribes to people when they are ill differ from culture to culture. There is also cross-class variation with regard to specific illnesses. Where the poor may adapt to their lack of access to medical care, become fatalistic, and accept their illness, the educated classes are more assertive in the relationship, rejecting the norm of passivity in favour of self-diagnosis or negotiated diagnosis.

The other approaches on doctor-patient relationship are the Marxist and Feminist approaches. Marxist sociologists interpret the doctor-patient relationship within the context of capitalism. In the Marxist analysis, the western capitalist doctor-patient relationship is conditioned by the “medical-industrial complex” (Waitzkin, 1993; McKinlay, 1978). The main consideration is profit-maximization and drives the whole process from the innovation of technologies to drugs and physician diagnosis and decision-making. This determinist view is however contested by most orthodox advocates like Navarro (2007; 1989; 1983; 1980 and 1977). Physicians are not only agents of capitalism but also victims. They are the “engineers” which are needed to fix the workers to send them back into factories and work environments.

The feminist approach identifies the physician-patient relationship as patriarchal. The male physician attends to the female patient. This conforms

to the notion of women as the weaker sex and in need of treatments (Bruun and Elverdam, 2006; Anastos, 1989; Ehrenreich, 1972). Even though women have been most closely involved in medicine and care of the sick since ancient times, they have been mostly excluded in modern times (Bastien, 1997, 1994; Bender, 1995). Feminist scholars also point out that women physicians often choose poorly paid primary care fields over the more lucrative, male-oriented surgical specialties. They are also more likely to be employed, not start or work in a private practice and do not function in positions of authority (Byrne, 2004; Roter, Stewart and Putnam, 1997; Levenstein, McCracken, McWhinney, 1996).

As part of the research on economic approaches to the issue of doctor-patient relationships, studies also found that patients without health insurance have less access to doctors, and receive less care from them when they have access (Balint, 1997; and Roter, Stewart and Putman, 1997). "Different payment structures also affect physician behaviour" (cf. Sharma, 2001; Mainous, Goodwin and Stange, 2004;). Another consideration is physicians' power to define illness. Due to their power, they could manipulate the degree to which physicians "induce demand". Induced demand theorists (Schyve, 2006; Reschovsky, Reed, Blumenthal and Landon, 2001) argue that physicians' financial incentives to treat, and patients' ignorance of their true needs, lead to inappropriate over-treatment.

Sindiga (1995) states that in most traditional societies like those of Africa, traditional healing is not based on any formal education or training in terms of certification but commonly known as "Ditswammung" in Setswana, meaning natural products. This is the healing knowledge that has been handed down from generation to generation to the present day. Holders and practitioners of such knowledge are regarded as the accredited service providers by the communities that they serve (Abayomi, 2000).

Katz and Biesele (1997) elaborates that traditional medicine has a long history. It is the sum total of the knowledge, skills and practices based on the theories, belief systems and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health, as well as in the prevention, diagnosis, improvement or treatment of physical and mental illnesses. The indigenous traditional medicine formulae are prepared from various natural substances such as animal, mineral and vegetable. The healers have extensive knowledge on the use of plants and herbs for medicinal and nutritional purposes. Some drugs are used as placebos, others

for sympathetic magic, but many have definite medicinal value (Green *et al.* 1995).

The use of traditional medicine has expanded globally and has gained popularity. It has not only continued to be used for primary health care of the poor in developing countries, but has also been used in countries where conventional medicine is predominant in the national health care system. Traditional medicine is fundamental to the survival of many indigenous people living in rural environments, which lack access to modern medical facilities. The medicines are composed mainly of natural ingredients from flora and fauna and therefore are crucial to the survival of the society at large.

It has been estimated that between 60% and 80% of the South African population currently use the traditional medical sector as their first contact for advice and or treatment of health concerns. Their treatment is holistic, dealing with the physical, social, environment and spiritual aspects of diseases (Hodgson, 2000; Fadiman, 1997).

With the tremendous expansion in the use of traditional medicine worldwide, safety and efficacy as well as quality control of herbal medicine and traditional procedures based therapies have become important concerns for both health authorities and the public. Various practices of traditional medicine have been developed in different cultures in different regions without a parallel development of international standards and appropriate methods for evaluating traditional medicine. The challenge now is to ensure that traditional medicine is used properly (Hallenbeck, 2000).

In his discussion of traditional healer Fadiman (1997) states that a traditional healer is someone who is recognized by the community in which he/she lives as competent to provide health care by using plant, animal and mineral substances. This includes certain methods based on the social, cultural and religious rituals as well as the prevailing knowledge, attitudes and beliefs regarding the physical, mental, social well-being and the causation of disease and disability in the community.

Rashim (2000) adds that worldwide authors expatiated on the traditional healers and healing systems, but do not take into consideration the vital aspects that sustain the relationship between the healer and the patient. On the same vein, the *Constitution of the Republic of South Africa* (1996) states that everyone has the right to privacy but healers tend to ignore this ethical concern. When the healer and patient meet for the first time, it is

often the most difficult phase of their relationship. This initial discussion is paramount as it sets the tone for all future discussions. This is because the healer on the one hand is expected to be a good listener, competent and supportive to the patient. The patient on the other hand must be able to reveal to an acceptable extent, the nature of his/her ailment and personal background to a total stranger. The healer-patient relationship thus, begins with a social-cultural contract of mutual understanding and trust. This kind of relationship and interaction is a central process in the practice of traditional medicine.

Furthermore, Matomela (2004) states that most community members consider traditional healers to be gifted and indispensable members of society. However, like anyone else, traditional healers can occasionally use their power to exploit and manipulate members of the society in which they live. As a result, some members of society may not follow the medical advices offered by traditional healers. This is due to the absence of certain ethical issues that the healer-patient relationship is void of. Strauss (1991) adds that little attempt has been made to examine the relationship between healers and patients and how it affects the patient's attitude towards medical advice. It is very depressing for most patients to find out that after consultation with a healer, they are later being used as examples to other patients. Healers tend to forget that patients are entitled to confidentiality and privacy.

The chapter is based on a study conducted in Manamakgotheng Village, North-West province, South Africa, on healer-patient relationship in Bakgatla-Ba-Kgafela indigenous healing systems. Bakgatla-Ba-Kgafela is one of the various Batswana ethnic groups found in the province. The chapter discusses the following aspects from the study community perspective: qualities of healer-patient relationship; and traditional versus western medicine.

Methodology

This was a case study of healer-patient relationship among the Bakgatla-Ba-Kgafela in Manamakgotheng Village (North West province). According to Sharma (2001) a case study helps the investigator to gain insights into what would otherwise be an amorphous phenomenon. "It permits an in-depth search and therefore understanding for meanings and reasoning". The unit of

analysis was Manamakgotheng Village because it is predominantly a rural community with limited modern health care services. The people depend on traditional healing systems for health care offered by traditional healers in the community. A stratified random sample of community members (50 men and 50 women) from the study community was selected. They were stratified on the basis of gender to provide both male and female community members an equal representation in the study sample.

Kish (1995) describes stratified random sampling procedure as a method of sampling that involves the division of a population into smaller groups known as strata. In stratified random sampling, the strata are formed based on members' shared attributes or characteristics. A random sample from each stratum is taken in a number proportional to the stratum's size when compared to the population. These subsets of the strata are then pooled to form a random sample.

According to the community knowledge holders such as elders, traditional healers, and traditional healers, women had to be included in the sample because they formed the majority of the people who used the services of traditional healers.

Data collection methods such as interviews with key persons in the community, and focus group discussions constituted the basis of the study. Key informants such as community traditional healers, community elders, and health workers were interviewed at all levels of the research process as a means to gain in-depth qualitative information. This approach is a traditional method used by social scientists for extracting community knowledge through well-placed individuals in the study community. It is part of the ethnographic approach, often being used in situations where access to official records or data is weak or non-existent. Where official records exist, it is used as a means to gain further insight by questioning key people about a specific social problem (Bastien, 1997).

Focus group discussions were held with groups of 5-10 randomly selected men and women in the study community. This was done in order to obtain different views from them in one sitting. Many African cultures make use of small group discussions, which are known as *Lekgotla* in South Africa to address the community's concerns. For this reason the focus group discussion method of data collection tends to be comfortable for local communities (Stephen, 1999). This method was also appropriate for

soliciting community knowledge and experiences on the research problem, especially in situations of limited research resources.

Secondary sources of data such as journals, internet sources, newspapers, conference proceedings and past research documents were used to support the data collected from the field. Data was analyzed by use of content analysis. Babbie (2000) defines content analysis as a methodology in the social sciences for studying the content of communication. Berelson (2002) elaborates that it is the study of recorded human communications, such as books, websites, paintings and laws. It is most commonly used by researchers in the social sciences to analyze recorded transcripts of interviews with participants.

Presentation and Discussion of Research Findings

The respondent community members were asked to indicate in a questionnaire, interviews and focus group discussions, the qualities of healer-patient relationship they preferred from their own community experience; and the differences between traditional versus western medicine in healer and patient relationship from their own experiences;

The Qualities of a Healer-Patient Relationship: A Community Perspective

This section discusses the respondent community members' views of qualities of a healer-patient relationship in African traditional healing systems from their community experience and perspective. This was meant to establish how these qualities influenced the perceptions of the community members towards traditional healers and healing practices.

The study found that the majority of the respondents (72% male and 84% female) were passionate about traditional healing as a fundamental source of health and medical care in their community. Interviews and focus group discussions with the respondents indicated that a good healer-patient relationship must be based on trust, confidentiality, empowerment and mutual respect.

Trust

Interviews with key persons indicated that one of the most important elements of a good healer-patient relationship is trust. According to the respondents, traditional healers are entrusted to ensure the good health of community members. Therefore, it is the duty of the healer to provide the appropriate diagnosis, cause and treatment of any ailment presented by a patient. Taking into consideration the fact that traditional healers treat the physical, social and spiritual aspects of ailment, it is imperative that there must be trust between the patient and the healer. Focus group discussions with the respondent community member revealed that some families had private traditional healers whom they trusted to provide medical attention to them whenever the need arose.

In an interview with a traditional healer in the study community he indicated that trust must be two-sided. The patient on the one hand must be able to reveal all relevant information that will assist the healer in diagnosing the patient's illness. On the other hand the healer must be able to tell the patient the truth about his/ her illness. According to the traditional healer, patients sometimes ask questions such as: what is the cause of this illness?; what can I do about it?; and what would you do if you were in my place? In this case, the patient seems desperate and willing to do everything the healer recommends. Therefore, healers must uphold the trust and tell the absolute truth about the patient's ailment.

Confidentiality

Another key element in a good healer-patient relationship as indicated by the respondents is confidentiality. Appropriate patient confidentiality must be maintained at all times. Traditional healers in their everyday contact with patients come across many different types of ailments which are perceived as private and confidential by the patients. It is the healer's obligation to always maintain a high level of confidentiality concerning complaints by their patients. Some of the common complaints include factors like sexual dysfunctions, sterility and other such matters which the patient would want to be kept confidential. The traditional healer must act not only as a healer, but also as a social psychologist, priest and social worker. This can only be accomplished by his ability to maintain confidentiality between healer and patient at all times.

Empowerment

Furthermore, the respondents indicated that another quality of good healer-patient relationship is empowerment. Interviews with a traditional healer revealed that the healer is the health practitioner and the patient is the health seeker. In the same way, the healer is healthy and stable while the patient is unhealthy and unstable. It is therefore the role of the healer to restore stability in the life of the patient. In this case, the healer must educate the patient about his ailment and state clearly the different ways in which the patient can be cured. This will enable the patient to accept his/her ailment and at the same time participate in the treatment process. This will help to combat the practice of patients abandoning treatment to seek alternative measures. Giving patients information, listening to them, validating them, and fostering their participation are all sources of empowerment – helping patients to actualize their ability to knowingly participate for their own benefit.

Mutual Respect

The respondents indicated that another important quality in patient-healer relationship is mutual respect. In indigenous African communities, traditional healers are viewed as mediators between ancestors and their communities. Disrespecting the healers will mean breaking the link between the community and the ancestors. The respondents stated that as far as the relationship between traditional healers and their patients was concerned, there was no doubt that traditional healers were greatly respected by many community members for their healing power. According to respondents traditional healers constitute a class of highly privileged people who play an important role in their lives. This is due to the fact that they have a special power of communicating directly with the ancestral spirits. However, focus group discussions with respondents revealed that giving respect to traditional healers does not mean that the healer should take advantage of the patients. Morality is an important virtue in indigenous African communities. Thus healers must uphold morality in a bid to maintain respect from their community member and concentrate on curing the patient.

Traditional Versus Western Medicine in the Patient-Healer Relationship: A Community Perspective

The study wanted to establish the community's perspectives on the issue of traditional versus Western medicine in healer-patient relationships. Traditional healers who participated in the study agreed that traditional medicine has some limitations which hinder it from keeping up with scientific and technological advancement. A traditional practice takes time to diagnose illnesses such as AIDS, TB, etc. However, it has its own strengths as well because traditional medicine worked in some areas where western medicine fails. Unlike western medicine it is accessible and appropriate to the people, in cultural, language, emotional, physical terms and the costs involved. The respondent traditional healers described the relationship as one of the most unique and privileged relationships a person can have with another human being for better quality of health care in the community. This is important for people who live in the same community. The trust created by the relationship contributed greatly to the healing process of the patient, psychologically, and emotionally.

The respondent patients and community members were of the view that because of the holistic nature of the diagnosis and treatment in the traditional healing system, it was far superior to the Western system. The healers were not only interested in the physical body of the patient but the person as human being who deserves respect and has his or her own feelings. Traditional practitioners use a wide variety of treatments ranging from "magic" to biomedical methods such as fasting and dieting, herbal therapies, bathing, massage, and surgical procedures. The patient and whole family were also actively involved in the healing process. Moreover, unlike in the Western system, sometimes the payment for a traditional treatment depends on its efficacy. The healer did not request payment until after the treatment was given. This is another reason why many people preferred traditional healers to Western doctors. The latter require payment before the patient has assessed the effectiveness of the treatment. There was also the issue of privacy and respect in traditional healing – which are important considerations in terms of gender, age, marital status, and social status.

Focus group discussions with the respondents indicated that patients who use traditional medicine do not spend long hours in queues as is the occurrence in the context of Western medical practice. Traditional medicine also provides a platform for patients to talk about their illnesses with the

healer and to do so extensively. This is possible in the traditional context because the healer has more time available and a smaller number of patients to attend to than in Western medical practices.

Traditional medicine can also be personal in terms of practitioner and patient relationship. Respondents argued that physicians in Western medicine are often caught up in their technology. While technology and basic science research are vital in understanding diseases and developing therapies, they can never lose sight of the fact that they are treating people and not machines. They treat people with diseases, not disease in people; and it is important not to lose sight of this difference (Strauss, 1991).

Conclusion

This study revealed that an overwhelming majority of the respondent community members in the study community consulted traditional healers on various health and medical issues. The informants identified qualities such as trust, respect and confidentiality as key concerns that play a foundational role in patient-healer relationships. Healers were responsible for maintaining the dignity of their patients. However, the strengths of African traditional healing systems were also recognized. It was indicated that there were certain areas where traditional healing systems and medical practices worked better than western medicine systems. Traditional healing systems were also more intimate in terms of trust and respect than western medical practices.

The respondents acknowledged the strengths and weaknesses of both health care systems, i.e. modern and traditional. It is suggested that there should be integrative health-care system based on the philosophy that the combined knowledge of modern and traditional healing disciplines is ultimately superior to a conventional view of health and wellness. The objective of integrative healthcare is to blend modern and traditional medical practices to produce safer, focused and more effective health-care. Fundamental to integrative healthcare is a patient-centric approach that emphasizes the unique attributes of each patient. Health and healing are individually determined and may be different for each person. The goal of integrative healthcare is a collaborative approach between patient and an interdisciplinary team of practitioners that work together as partners in the healing process of the patient.

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Section Two

The chapters that constitute Section Two discuss indigenous knowledge related to culture, policy, education, governance and ICT and media in mobilizing and communicating African indigenous knowledge systems. The aspects discussed include: *First*, the impact of colonialism and globalization on the erosion of African cultural identity and the challenge for the current generations and African governments to restore and preserve Africa's cultural heritage sites as bases for knowledge and awareness of Africa's cultural identity and nation building. The restoration and conservation of the Bookela Kgosi heritage site of the Bakgatla-Ba-Kgafela in the North-West Province (South Africa) is given as one example of such initiatives. Furthermore, African indigenous knowledge could be an important tool for promoting African culture, unity and sustainable development. This is based on the argument that African countries should begin cooperating on the basis of what is already there, i.e. their African indigenous knowledge systems including the philosophies behind them. However, taking into consideration the diversity of African cultures, there is a need for proper analysis and planning of the existing cultural potentialities to meet global and modern challenges.

Second, is the role of government policy in protecting African indigenous knowledge. The sustainability and effectiveness of the policies and legal frameworks will depend on the knowledge and awareness of the local communities about these policies, especially the knowledge holders and producers. This includes the significance of these policies in the sustaining and improvement of livelihoods of the communities. The sustainability of African indigenous knowledge will be enhanced further if indigenous knowledge is incorporated into the formal educational system so that the younger generations can have access to it. Some of the studies in the publication explore the challenges and prospects of this endeavour.

Third, is the significance of African indigenous forms of governance which are still relevant in most African communities, especially in the rural areas. This is due to their cultural acceptability and accessibility compared to western systems. However, they are limited by gender constraints and need to be capacitated with modern governance systems to meet modern challenges and prospects of governance.

The Prospects and Challenges of the Restoration and Conservation of the Bookela Kgosi Heritage Site of the Bakgatla-Ba-Kgafela



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In African indigenous spiritual and cultural contexts, land and associated heritage sites, form a central feature of the cultural and spiritual life of an ethnic group. This chapter reports the results of a participatory and situational study that was conducted on the prospects and challenges of the restoration and conservation of the Bookela Kgosi heritage site of the Bakgatla-Ba-Kgafela ethnic group in the North-West province of South Africa. The land does not only contain the sacred sites of the tribe, but marks their place of revelation and provides awareness of a people's cultural identity and continuity of life by unifying the past with the present. The restoration and conservation of the heritage, as well as the history and activities associated with the heritage site when, well marketed, could provide sources of education as well as employment and income generation for the surrounding communities.

Keywords: Situational analysis, restoration of Bookela Kgosi, Disake village

1. Introduction

All over the world people revere certain places and sites due to the special significance that they hold in their cultural and spiritual lives. Having been

highly respected by a people's ancestors, such spaces are also revered by contemporaries who, today, seek to conserve, restore and protect them from the encroachment of modernization and environmental destruction. Around the globe, efforts are afoot to attempt to accommodate the use of such spaces by different groups of people, including religious practitioners, tourists and land developers (Srinivas, 2008; Rivette, 2000).

Yusuf (2008: 36) and Black (2003: 61-85) show that once restricted to monuments, archaeological sites, and movable heritage collections, the definition of cultural heritage now includes historic urban areas, vernacular heritage, cultural landscapes (tangible heritage, which include natural and cultural sites), and even living dimensions of heritage and all aspects of the physical and spiritual relationship between human societies and their environment (intangible heritage).

In an African indigenous spiritual and cultural context, land and heritage places located on it, play an important role in tribal religion and spiritual life. It not only contains the sacred sites of the tribe, but marks their place of original location and revelation. This provides an acute awareness of a people's identity and continuity of life by unifying the past with the present. Myths, legends and revelations associated with these sacred sites tell the people about places where they not only come from but also where they can return to and communicate with higher powers, pray, receive help and guidance. People become attached to such a place through its sacred roles and through a communal responsibility to retain its powers and sacredness. Tribal histories and myths about a sacred place establish the connection between land and community through relating communal experiences (or historic events), which took place at the sacred site. "Such experiences and past practices become common knowledge to a particular tribal community, and thus the place becomes part of a people's cultural identity, even when the tribe is forced to relocate far from their original homeland" (cf. Saltanaviciute 2000; Kuruk, 2004).

Although each sacred site possesses individual qualities, sometimes known only to a particular tribe, some sites have significance to a number of tribal groupings and have come to be considered as part of the national cultural heritage of some countries. This has important implications for restoration efforts in the sense that it is much easier to voice the restoration and preservation concerns of several tribal groupings with an attachment to a site than those of an individual tribe.

In his discussion of heritage and identity in South Africa, Francioni (2007) argues that during colonialism and apartheid the dominant view on the development and restoration of cultural heritage in South Africa was Eurocentric. It focused primarily on an appreciation of the aesthetic value of European, colonial and apartheid inspired architecture. This perspective was strongly propagated by successive colonial governments including the apartheid regime. However, a radical change in approach and perspective on heritage and identity was only possible after the democratic South Africa came into being in 1994. It laid the basis for a non-racial understanding and appreciation of the new nation's diverse heritage. This new understanding was captured in the then former Vice-President's Thabo Mbeki statement on 8 May 1996 in the Constitutional Assembly of South Africa "I am an African". The new understanding also appears in the new coat of arms of democratic South Africa launched on Freedom Day 2000 as well as in the White Paper on Arts, Culture and Heritage 2000.

Frigo (2004) looks at the significance of cultural heritage conservation and restoration by stating that they help a community not only to project its economically valuable physical assets, but also preserve its practices, history and environment, and a sense of continuity and identity.

The restoration of cultural heritage sites has been on the global agenda for a few decades now. The General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO) meeting in Paris (17 October to 21 November 1972) noted that cultural heritage, including sacred sites, are increasingly threatened with destruction. This is not only by the traditional causes of decay, but also by changing social and economic conditions. This concern takes into consideration the fact that the deterioration or disappearance of any cultural or natural heritage item constitutes a harmful impoverishment of the heritage of all nations of the world. In short, the world has a whole lot to gain in protecting such resources (Durant, 2000).

Despite this candid acknowledgement, the UNESCO convention (1972) also notes that the restoration and protection of most heritage resources, including sacred sites at both community and national levels, often remains incomplete because of the mismatch between the scale of the resources required (economic, scientific, and technological) and what is actually available to the community where the site to be restored or protected is situated.

This is especially true of third world countries in general and Africa in particular. South Africa is fortunate to have put in place some mechanisms for overseeing the restoration and protection of her national heritage sites. In 1996, for instance, an initiative was undertaken in South Africa to create a new framework for heritage conservation. This resulted in the passing of the National Heritage Resources Act (NHRA) (see <http://www.SAHRA.co.za>) in 1999, and the replacement of the National Monuments Council by the South African Heritage Resources Agency (SAHRA) on 1 April 2000. NHRA emphasises correct management of the heritage resources, or “National Estate” of South Africa and provides SAHRA with the power to identify and prescribe minimum standards.

Despite such encouraging initiatives, there remains plenty of room for improvement. For instance, ICOMOS (2003) indicates that in terms of South Africa’s National Heritage Resources Act (1999), all buildings older than 60 years are automatically protected. However, the legislation has not prevented vandalism and destruction of heritage sites, especially sacred sites, since South Africa’s official heritage conservation agency is understaffed and under-sourced. Furthermore, the South African Police Services and other agencies are in most cases unaware of and disinterested in applying heritage conservation measures that take low priority when compared to fraud, theft, murder and other crimes. On the basis of a study conducted on the prospects and challenges of the conservation and restoration of the Bookela Kgosi heritage site of the Bakgatla-Ba-Bgafela tribal community in Disake Village, North-West province, South Africa, the chapter discusses the following aspects:

- The socio-demographic and economic profile of the community members living around the Bookela Kgosi heritage site.
- The historical background, cultural and educational significance of Bookela Kgosi.
- The knowledge, awareness and attitudes of the community members around the Bookela Kgosi heritage toward its restoration as a sacred site of the tribe.

2. The Study Site

Bookela Kgosi is one of the important historical sacred places of the Bakgatla- Ba-Kgafela. The Bakgatla-Ba-Kgafela belong to one of the Batswana ethnic groups found in the North-West province of South Africa.

Other Batswana ethnic groups in the province include the Baphalane, Baphiri, Bakgatla, Batlhaping, Bakubung, Batlokwa, Bahurutshe, and Batlhako,

The Bookela Kgosi was the place where all previous *dikgosi* (Chiefs) of Bakgatla-Ba-Kgafela were sent to for treatment when they fell ill. Special senior tribal leaders of the different *dikgoro* (clans) of the tribe stayed with and nursed a particular *Kgosi* until he recuperated. This sacred place is situated at the end of Disake village near the hills of the ancestors and the stream that originates from the village of Mokgalwane. This location is also known as “Modimongwe”, a name it shares with one of the indigenous trees found around Bookela Kgosi. Custodians of the sacred site point out that only traditional healers and chiefs were allowed to climb the sacred hills. Lore has it that chief Lentswe I of the Bakgatla used to bathe in the stream next to Bookela Kgosi. The Bakgatla people used to maintain, manage and protect the stream at all times, hence the place never ran short of water. Today, however, the stream that used to produce clean and fresh water has run dry. Community elders in Disake and other surrounding villages also pointed out that the community rainmakers used to pray and evoke rain in the sacred hills next to Bookela Kgosi.

Several views exist with regard to the history of this sacred site. Some argue that the place was built during the time when the Bakgatla people were fighting with the Boers in 1899 over cattle and grazing land. Community elders in Disake and surrounding villages however, argue that the sacred place existed before these wars. Further, they point out that Bookela Kgosi does not only hold cultural significance for the Bakgatla-Ba-Kgafela tribal group, but for other ethnic groups such as the Batlhako in Mabeskraal, the Batlokwa in Tlokweg and the Bakgatla. These ethnic groups are related to one another due to the fact that, the first wife of Chief Pilane 1 was Mmankube, the daughter of the Chief of the Batlokwa in Tlokweg and Chief Lentswe I’s second wife comes from the village of Mabeskraal. Today, in Disake, there is a school called Kgafela, which was in the past called Bookela Kgosi. The community elders lament that most of the young people in the community are ignorant of the school’s change of name.

This is a place of significant importance not only to the various mentioned ethnic groups but to the nation as a whole. It has great potential as a heritage centre for teaching the rich history, traditions and customs of these ethnic groups, especially to the youth. The Bakgatla-Ba-Kgafela, like other people in the world do have the right to free exercise of their traditional

customs and religious beliefs. This involves the unobstructed use, restoration and protection of their sacred sites such as Bookela Kgosi in Disake village. Furthermore, while cultural sites are major tourist attractions worldwide, sub-Saharan Africa, including South Africa, is not known to the broader tourist community for its heritage sites (Forrest, 2007; UNESCO, 2002). The Bakgatla-Ba-Kgafela people would like to restore the craft place (centre of the Bookela Kgosi) so that crafters can produce and sell their artefacts to tourists.

This takes into account the fact that Disake village is within the Madikwe and Pilanesberg corridor. Indigenous dishes would also be prepared for tourists, while passing through. Hitherto, very little has been done, if anything, to tap into this rich resource. Factors responsible for this state of affairs include, among others, the lack of heritage-oriented education, limited communication and poor infrastructure as well as the urgency of other more pressing priorities, which have dominated all aspects of life in the community and country at large. It is on the basis of these considerations that the community would like Bookela Kgosi to be used as a heritage centre.

3. Methodology

This was a participatory and multi-disciplinary situational analysis on the prospects and challenges of the conservation and restoration of the Bookela Kgosi heritage site of the Bakgatla-Ba-Kgafela tribal community in Disake Village, North-West province, South Africa. This was meant to ensure the maximum participation of community members, as knowledge holders, at all stages of the research process. It was also meant to effectively utilize the available community expertise to enhance the quality of data collection, including the use of caution in applying external frames of reference in data analysis and interpretation. W.K. Kellogg Foundation Community Health Scholars Program (2009) elaborates that the key difference between participatory and conventional methodologies lies in the location of power in the research process. Community-based participatory research (CBPR) is a collaborative approach to research that equitably involves all partners in the research process and recognizes the unique strengths that each brings. CBPR begins with research topic of importance to the community, has the aim of combining knowledge with action and achieving social change to improve health outcomes and eliminate health disparities.

The multi-disciplinary approach took into consideration the holistic nature of indigenous knowledge systems (IKS). Therefore, researchers from different disciplines (Sociology, biological sciences, Indigenous Knowledge Systems and History) were involved in the research process in order to have a comprehensive understanding of the research problem.

Moreover, the use of the participatory approach was guided by the fact that, the Bakgatla-Ba-Kgafela tribal community customs and other cultural practices are not codified. They are derived from oral traditions transmitted from one generation to another and from observation of community practices. Hence, the use of both qualitative and quantitative research methods was deemed appropriate for this research due to the complex nature of the research problem.

Qualitative research methods such as key informant interviews, focus group discussions and participant observations formed the core of the data collection methods; while a questionnaire was administered to the research sample of 50 men and 50 women of the tribal community in Disake Village in an effort to collect supportive quantitative data. The sample was purposive. Bailey (1994) defines a purposive sample as a sample selected in a deliberative and non-random fashion to achieve a certain goal. In a focus group, for example, you may want to consciously seek out respondents at both ends of a spectrum (as well as some in the middle) to insure that all viewpoints are adequately represented (Babbie, 2004; Welman, Kruger and Mitchell, 2005). Qualitative methods are frequently used in conjunction with quantitative methods to give an overall representation of behaviour within a particular population. After data from both methods were collected, the results were triangulated for a comprehensive understanding of the research problem.

Key informants such as community elders, both men and women, were interviewed at all levels of the research process as a means to gain in-depth qualitative information. The approach is also used in situations where access to official records or data is weak or non-existent. Where official records exist, it is used as a means to gain further insight by questioning key people about their modes of life or specific social problems.

Focus group discussions were conducted with randomly selected groups of 6-10 community members. A focus group discussion is a semi-structured interview in which the discussant knows in advance the topics to be covered. The people included were known to have been involved in specific experiences related to the research problem. Focus group discussions

are different from other types of group interviews in that they focus on a particular topic and they rely on group dynamics in order to generate data. The interaction is mainly between group members themselves and not between the members of the group and the interviewer. Group interaction is used in this type of research to generate data and as a source of data analysis. The assumption is that there is an interaction that is productive in widening the range of responses, in activating forgotten details of cultural experience/knowledge and in releasing inhibitions that are part and parcel of interviews with individuals.

Qualitative data in the form of audio taped interviews were transcribed and translated from Setswana into English. Interview and participant observation notes were typed and a content analysis conducted. Whenever possible the site research assistant was also the person who transcribed and translated audio tapes for the site to ensure data accuracy. Quantitative data in the form of questionnaires were checked and coded. Data was analyzed using SPSS/PC+. Validation checks were conducted through all phases of the research to ensure the highest level of data accuracy. Information which was unclear or missing was clarified or collected by returning to informants and reviewing issues and concepts. The following sections discuss the research findings.

4. Presentation and Discussion of Research Results

Socio-Demographic and Economic Characteristics of Respondent Community Members

The study on which this chapter is based was interested in describing the Disake village community where the Bookela Kgosi heritage site was located. The respondent community members were asked using a questionnaire to indicate the following: gender, age group, marital status, educational attainment, religious affiliation, ethnic background and household sizes, occupational status and income (both individual and household levels). The results are discussed below:

The majority (83%) of the respondents were aged 51 years and above. Of the remainder, 3% were young adults aged between 20 and 30 years while the rest (14%) were aged between 31 and 50 years. Sixty three percent, (63%) of the respondents reported that they were married whereas 19% indicated that they were single (never married) and 5% were just living together (co-habiting). The remaining 4%; 5%; and 4% comprised of those who reported being separated, divorced, and widowed, respectively.

The study revealed that 33% of the respondents had no formal education at all; 40% had attained primary school education; 22% had secondary school qualifications, and 5% had attained tertiary education. With respect to the respondents' religious affiliation, the majority (85%) reported that they were Christians, compared to 8%, 4%, and 3% who indicated that they had no religion, or were affiliated to African traditional religions, or belonged to the N.G. Kerk faith, respectively.

On the issue of ethnic composition in the community, the bulk of the respondents (93%) were from the Tswana ethnic group (Bakgatla) compared to 5% who gave Sotho as their ethnic group, 1% who said they descended from the Xhosa ethnic group, and 1% from the Shangani ethnic group. On the issue of place of origin the majority (66 %) of the respondents reported that they originated from Disake village itself. The rest originated from other areas within and outside the North-West province. Concerning the length of time that the respondents had lived in the Disake Community, the results showed that 86% of them had lived there for more than six (6) years while only 2% reported having resided in the community for less than one (1) year. The remainder included 3% who had resided in Disake village for 1 to 2 years, 2% for 3 to 4 years, and 7% for 5 to 6 years.

The research also sought to establish household characteristics of the respondent community members including size and composition. Frigo (2004) describes a household as "the basic residential unit in which economic production, consumption, inheritance, child rearing, and shelter are organized and carried out". The household may or may not be synonymous with family. Bailey (1994) elaborates that in human context, a family (from Latin: *familiare*) is a group of people affiliated by consanguinity, affinity or co-residence.

The study found that only 39% of the respondent households had less than five members compared to 61% which had 5+ members. The household members residing permanently with the respondents ranged in age from children below five (5) years to adults aged above 60 years. Specifically, while 47% of them were adults aged 60+ years, 27%, 15%, and 12% were adults aged 18 to 60 years, children aged 5 to 17 years, and children aged below five (5) years, respectively. These figures reveal that the majority, 53.2% of the households were populated by individuals outside of the working age of 18 to 60 years and hence the existence of a high dependency ratio.

The study also examined the sources of livelihood in the community. It was found that whereas 1% of the respondents reported that they had no

major source of livelihood, the majority (57%) indicated that they subsisted on social welfare grants. Other common major sources of livelihood included the selling of farm produce (crops) and/or livestock (15%), daily casual labour (12%), and wages from formal employment (10%). From the results, it could be concluded that the bulk of the community members (73%) lacked a sustainable source of livelihood. Included in this category were the 1% who had no major source of livelihood, the 57% relied on social welfare grants, the 12% who relied on daily casual labour, and the 3% who subsisted by providing services to other community members. The picture becomes grimmer when one considers the fact that small-scale agriculture may not be a very reliable source of livelihood.

Concerning employment status of the community, only 13% of the respondent community members were formally employed, while 8% indicated that they were self-employed (either in agricultural or the micro business sectors). The remaining 42% and 37% included those who were unemployed or retired, respectively. The study asked those who were unemployed to indicate the length of time they had been unemployed. The majority (88%) of the respondents said they had been without work for periods exceeding six (6) years compared to 5% who had been unemployed for 1 to 2 years; 5% for 3 to 4 years; and 2% for 5 to 6 years. Whereas 26% of the unemployed reported that they were actively looking for a job, 74% said they were not. Those who were actively looking for work included those who were interested in any paid job, those looking for jobs within their areas of professional training, those who sought any full time employment, and others who were seeking part-time/temporary work.

The unemployed individuals who reported that they were not actively looking for work gave a variety of reasons for this state of affairs. Whereas 42% percent of them said they had given up looking for a job (they were discouraged job seekers), 26% indicated that they preferred to be self-employed. The remaining 23% and 10% included those who preferred a job within the community only and who said there were no job vacancies in their professions, respectively.

With specific reference to household members, the study showed that that 52% of the households surveyed had none of their members formally employed. While 41% of households had 1 to 2 employed members, 6% had 3 to 4 employed members and 1% of households reported having more than four (4) of their members in wage employment.

The study was also interested in establishing the income status of the respondents themselves and of the household as a whole. The results showed that gross monthly incomes for the employed respondents ranged from R 350 to R 4 300 per month. Whereas 38% of those who said they were employed reported earning R 350 to R 1 000; 24% earned R 1 001 to R 1 500; 19% earned R 1 501 to R 2 000; and 14% earned R 2 001 to R 3 000. Those earning gross monthly incomes in excess of R3 000 comprised only 5% of the employed respondents.

With respect to household incomes, the results showed that 11% of households had total monthly incomes of less than R 500 while only 1% had monthly incomes exceeding R 4 000. The study found that monthly incomes for 61% of the respondents ranged from R 500 to R 1 000, those for 16% ranged from R 1 001 to R 1 500, and those for 6% of the households between R 1 501 to R 2 000. The remaining 2% and 3% of the households had total monthly incomes of between R 2 001 to R 3 000 and R 3 001 to R 4 000, respectively.

Given the rural nature of the Disake community around the Bookela Kgosi, information was sought about the community's interest in farming as a predominant economic activity including other land uses. The study showed that the majority (68%) of the respondents were interested in farming (crop and animal production combined) compared to 32% who said that they were not. Of the 68 respondents who expressed interest in farming, 46% (31) reported that they owned no land at all, 21% (14) owned less than one (1) hectare, 19% (13) 1 to 4 hectares, 10% (7) 5 to 10 hectares, while only 4% (3) stated that they owned an area larger than 10 hectares of land.

Those who owned land reported that they preferred to use it for crop production, animal production, business purposes, and/or for settlement/housing. Asked to estimate the amount of land that would be adequate for their farming needs, 15% (10) of the 68 interviewees who were interested in farming considered less than one hectare to be adequate, 22% (15) said that they required 1 to 4 hectares, 47% (32) 5 to 10 hectares, and 16% (11) said they needed in excess of 10 hectares.

The Historical Background and Significance of the Bookela Kgosi Heritage Site

The study asked the respondent community knowledge holders (the elderly and community leaders) to explain the background and significance of the

Bookela Kgosi heritage site to the community. Interviews with community elders and leaders such as the present Chief of Disake Thari Pilane revealed that Bookela Kgosi existed during the rule of important and charismatic paramount chiefs of the Bakgatla, that is, Chief Lentswe I of Mochudi in Botswana and Chief Dikeme Pilane in Disake Village. Chief Dikeme was a respected leader in Disake. His first son Segale had a daughter by the name of Ntileng. Chief Dikeme was a brave warrior and a hero during the various wars fought by the tribe. He was involved in the wars between the Bakgatla and the Boers. It is also believed that he was the one who brought Chief Lentswe I from Botswana to Bookela Kgosi for healing when the latter was attacked by the Boers and was suffering from a terrible sickness.

Bookela Kgosi bears a particular meaning in the psyche of especially the older generations. To them “all the Bakgatla chiefs were brought to this secret and sacred place to be nursed and healed from different types of illnesses they had”. Older community members noted that the Bakgatla believed that the bed that chief Lentswe slept on in Mochudi had germs that prevented him from being healed. Hence, it was important for the chief to be relocated to the holy, clean and sacred place of the Bookela Kgosi, which was not infected. Also, according to the Tswana concept of “go *Fudisiwa Dilao*”. Bookela Kgosi was not only a place of healing for chiefs but a secret hiding place of Bakgatla chiefs from their enemies such as the Boers.

According to community elders, the Bookela Kgosi attested to the active involvement of the Bakgatla in the history of South African wars. The name Bookela Kgosi also signified that the paramount chiefs of the Bakgatla such as Chief Lintswhe I was healed and nursed in that particular sacred site by senior men of different clans. One of the senior community members who nursed Chief Lintswhe I was Senelo Molefe, the brother of Rampone Molefe. After a period of healing and nursing, Chief Lintswhe I was taken back to Botswana (Mochudi) where he finally died. Community sources such as elders in Disake indicated that when Chief Lintswhe I passed away, there was a slight earthquake. The Bakgatla believed that it signified that Bakgatla chiefs were not just ordinary common people. The Bakgatla also had a belief that Chief Lintswhe I was protected and guarded at all times by a big mystical serpent that lived next to the stream, and that he had supernatural powers to communicate with the ancestors and wild animals, including snakes.

Information and access to the Bookela Kgosi was not publicized or meant for everyone. Bookela Kgosi was a sacred site that was known by senior men of different clans and in the community. The Bakgatla

community members including the youth had little information about Bookela Kgosi as they were not allowed to visit the sacred place.

Cultural and Educational Significance of the Bookela Kgosi

The researchers conducted face to face interviews with one of the prominent knowledge holders of the Bakgatla people, Mrs Grace Masuku. She pointed out that the Bookela Kgosi is a community heritage and sacred site of the Bakgatla and is of great significance to the history of all the Bakgatla. As such, it has to be restored, preserved and protected for the present and future generations. She stated that only senior men of clans with spiritual and herbal knowledge were allowed access to the Bookela Kgosi. Women and other common members of the community were not allowed to visit or play around the site. Young girls, however, were allowed to bring water in clay pots to the Bookela Kgosi. The Bakgatla, like any other Batswana ethnic group, had their own taboos and myths that were important aspects of their cultural identity. Observation and respect for these cultural values kept the community together as a tribe.

For instance, certain practices were considered taboo by the rules promulgated by the tribe for spiritual and cultural concerns. Bakgatla women, for example, were not allowed access into Bookela Kgosi, just as it was a common practice among the Bakgatla that, a woman was not allowed near a cattle kraal. The Bakgatla, like other Batswana tribal groupings also had their own cultural totem, that is, the blue monkey (*Kgabo*). According to community elders, in times of war, they had another totem, *Kgabo ya mollo* (the tip of the flame). Chief Legabo was also identified by the totem “Kgabo”. While cultural and spiritual practices varied from group to group, it was common among the Bakgatla that the killing or eating of the totemic animal was considered a taboo by the entire community or clans.

The Bookela Kgosi was not just a place, but an institution in itself. It was composed of five clans (*dikgoro*) under hereditary men, the *dikgosana*. Some of these headmen or senior men were also herbalists and diviners who no doubt constituted a repository of indigenous knowledge of spiritual and health matters, amongst others. At the Bookela Kgosi there was a designated cooking place for the Chief called Sebeso. All the structures at the Bookela Kgosi were erected out of stones, like the cooking place for the chief and his household. Sand was used to seal off holes and then cow dung was used for decoration and designs. The chief’s household was situated next to a big

indigenous tree, the “*Motswere*”, surrounded by clans under the leadership of senior headmen, who were also relatives and members of the chief’s family. It is believed that only one person from the senior clan of Kgosing was responsible for cooking for the chief. The chief was not supposed to be given food by anyone because he was special. Local materials such as stones/rocks, the thatching grass were used to erect the buildings and structures that represented the various clans including the chief’s homestead.

The circular packed stone wall structures symbolize and represent the various clans of Bakgatla. They were built by the regiments of Makoba, Makuka and MaGata by using available local materials and technology. Shelter for the regiments, senior headmen and the chief were provided for inside the stone walls. The regiment of MaGata was under Kgosi Dikeme Pilane; Makoba under Kgosi Ramono Kgamanyane; and lastly, Makuka was the last regiment formed under traditional ritual under Kgosi Kgafela Lentswe. These regiments, clans and their leaders played a very important role in Bakgatla tradition. They had a close relationship with the chieftaincy of the Bakgatla. Most of the senior headmen were related to the chief as members of the extended family. The Clans, sub-clans, headmen and small villages of which the chief was the paramount ruler comprised the chieftaincy of Bakgatla.

Leadership and Authority at the Bookela Kgosi

According to information from the community elders and secondary sources on the history of the Bakgatla, five *dikgoro*/clans were found at Bookela Kgosi who also acted as advisors, protectors of the chief. Although internal frictions were common among these groups, they always remained united through a common language and culture and combined their forces against a common enemy. Hereditary senior headmen of the clans were responsible for providing information on the status of the chief to other senior headmen at the village. Hence, there was regular communication between the senior headmen at Bookela Kgosi and those within the village. For instance, during his stay at Bookela Kgosi, senior headmen at the village were updated continuously on the status of Chief Lentswe I. The importance and responsibility of the clans and headmen were not only to nurse the chief, but also to ensure collective governance, protection of the community and its leadership.

The study indicated that the clans and sub-clans of the Bakgatla formed the basis of the social structure at Bookela Kgosi. One can look at the clans as the “mainstream organization” of the Bakgatla people whose life membership is only through birth, adoption or marriage. The clans at the Bookela Kgosi were arranged according to their hierarchy. The senior clan is Kgosing under the leadership of headman Bogosi Pilane. They also had sub-clans such as Sebeso and Rramolefe. The chief and the senior clan were the focus of the tribe. They held the highest authority. Virtually nothing took place at the Bookela Kgosi without the knowledge and approval of the senior clan.

However, the senior clan’s authority was not absolute. The senior clan had advisors from a hierarchy of senior headmen from other clans. The clans were constantly observing the health, watching and assessing the behavior of the chief. The senior clan of Kgosing was followed by Morema, Mabodisa, Motuana and lastly by Tshukudu. All these clans had their sub clans that were found in the village. The senior clan had fire as its totem, and so those of the clan were called the people of fire. The clan of Mabodisa came up with the totem of a monkey (*kgabo*) and that of a green insect. The clan of Tshukudu was the smallest and was represented by the Bakgatla Chief Maoto whose totem was “*Noko*” in the village of Magong. Other Bakgatla clans were located in Mochudi, Botswana.

The study also revealed other educational and cultural significance of the Bookela Kgosi, especially with regard to the indigenous knowledge surrounding the Bookela Kgosi. One of the significance of this heritage site was the wide variety of medicinal and nutritional plants found around the Bookela Kgosi. This included the rich knowledge on their uses, the myths about each plant, and how to prepare the plant for use.

Community Awareness and Perceptions toward the Restoration of Bookela Kgosi

The respondent community members were asked using a questionnaire about their awareness of the existence of the Bookela Kgosi and through focus discussions and interviews about their views and perceptions towards the significance of the restoration of Bookela Kgosi heritage site. The findings on the levels of awareness indicate that 73% of the respondents reported that they were aware of (or knew about) Bookela Dikgosi heritage site; the remaining 27% said that they did not know about it. Those who reported

knowing about Bookela Kgosi were asked to indicate what they knew about it. The respondents were allowed to offer more than one explanation. The majority of them (95%) considered it a historical sacred place for the Bakgatla because it was where all previous *dikgosi* were nursed when they were ill, while 26% said that it was a historical sacred place where senior traditional healers and senior community members were nursed. Eight per cent (8%) of the respondents stated that Bookela Kgosi was a place where arguments or disagreements were settled.

However, the majority (91%) of the respondents shared the view that Bookela Kgosi had a role to play in the Bakgatla-Ba-Kgafela community today; compared to the 9% who held the converse view. Those who saw a place for Bookela Kgosi in the Bakgatla-Ba-Kgafela community today advanced a number of factors signifying its importance.: the symbolic “five stone structures” in the Bookela Kgosi heritage site provided a living example of traditional governance structures of the Bakgatla-Ba-Kgafela; it can be used as a heritage centre because it contains the sacred sites of the tribe; it can be a centre for teaching the history, traditions and customs of the tribe; and “it can be an attraction for tourists, students and researchers who are interested in learning about our traditions and customs” of the Bakgatla-Ba-Kgafela; it can bring about better and more just methods for dealing with disputes among community members; it has the potential to provide jobs for community members and can teach the younger generations about the importance of the culture they now shun, ignore or totally neglect.

The respondent community members who indicated that Bookela Kgosi no longer had any role to play in the Bakgatla-Ba-Kgafela community felt that most members of the community did not know and understand the importance of Bookela Kgosi today; community members have embraced Western values, and the new South Africa had no place for traditional governance structures.

Asked whether they would recommend the restoration of Bookela Kgosi, the majority (91%) of the respondents answered in the affirmative. The most importance reason they advanced was that Bookela Kgosi provided a living example of traditional governance of the Bakgatla-Ba-Kgafela as represented by the five stone structures in the Bookela Kgosi; it contains the sacred sites of the tribe and, hence, its heritage; it can be a centre for teaching the history, traditions and customs of the tribe and it is a source of socio-cultural prestige for the community. Those who opposed the restoration of Bookela Kgosi stated that they did not know anything about it

because they were too young while others argued that the younger generations of community members did not “care about local traditions and customs because they know very little about them”.

The Restoration Needs of the Bookela Kgosi

Interviews and focus group discussions with community members indicated the general opinion that the restoration and conservation of the Bookela Kgosi as a heritage site is for the benefit of the Bakgatla themselves, the North-West province and the country at large. The heritage site will form a basis of cultural identity for the local people, education for youth and a centre for (eco) tourism. The community elders emphasized that the Bakgatla themselves should be actively involved in all stages and processes of the restoration of the site because it is part of the restoration of their history and identity. They acknowledged that the restoration has both opportunities and challenges. One of the opportunities is the conservation of the heritage and sacred site of the community for present and future generations. The remains of scattered stones indicate where the clans were situated and how they were designed. The scattered packed stone walls that symbolize the five clans could thus easily be restored.

Further, a visit to the site showed that there are other structures of the Bookela Kgosi that are not totally destroyed such as the “*letlapa la Mmapitsa*” (which means the “Stone of Mmapitsa”). According to community elders “*letlapa la Mmapitsa*” is a natural enclosure made up of stones. It was a place where older women from the village used to gather and prepare food for the regiments at the Bookela Kgosi. Women were not allowed in the Bookela Kgosi but were allowed to be at the *Letlapa la Mmapitsa* during the day and in the evening they returned to the village. Legend goes that *Letlapa La Mmapitsa* was not built by human beings.

There are four rondavel ruins, which the tribe would like to restore: one for the King, one for his nurses, one for ablution and one for the kitchen. The stone structures have been partly destroyed by animals and need to be restored and fenced off. The restoration and conservation of these structures require accurate spatial information such as the shapes of the remaining walls, location and the physical extent of destroyed/eroded surfaces, thickness of walls, etc. The spatial information system of the site will also support the management of any restoration process.

Conclusion

The study demonstrated the prospects and challenges of restoration and conservation of the Bookela Kgosi as an important heritage site in the history and culture of the Bakgatla-Ba-Kgafela tribe. It revealed that the Disake community characterized by poverty lived amidst a rich cultural and natural heritage resource that could be put to good economic, cultural and educational use. The community appeared to know what it wanted because the majority of the respondents were in favour of the restoration of Bookela Kgosi for several reasons. These included the view that it was still having relevance as an example of traditional governance structures of the Bakgatla-Ba-Kgafela tribal group; recognized it as a place of sacred/ritualistic sites that may be used to teach the young generation and outsiders, the history, traditions and customs of the tribe and as a potential tourist attraction. There was also a wealth of indigenous knowledge with regard to ethno-medicinal, food and nutritional plants and their preparation and uses. With this was the willingness on the part of the community to take part in the restoration itself and preservation of the physical site and all that it stands for.

The community elders and knowledge holders living around the site still knew the various original sections of the Bookela Kgosi heritage site. Therefore, the respondents recommended that they should be actively involved in the identification of the original sections of the sacred place for its restoration. Taking into consideration the rich history of the sacred site including the remaining cultural and biological diversity found around it, the government and other heritage agencies at all levels (local, provincial and national) should provide the necessary support for this historical restoration.

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Community Knowledge and Perceptions of IKS and IKS Policy



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Since IK is knowledge that is based and used in African local communities, it is an important source for development. The adoption of the IKS policy by the government of South Africa in 2004 is testimony to its significance for development in South Africa. This chapter argues that the sustainable implementation of IKS in local communities and for the policy to positively impact on their livelihood, local communities need to actively engage it. This will however only come through the requisite education and training. The study was configured as a pilot study in a participatory research framework. It focused on the knowledge and perceptions of community members towards IKS and the IKS policy. The study found that there was general recognition of the importance of IK in that it provides affordable and accessible sources of livelihood, and that it helps to promote and conserve the environment and community cultural life. Women were the most actively involved social group in IKS activities as daily lives of community households depend on them. Respondents have however not heard of the IKS Policy.

Keywords: Community knowledge, awareness, IKS Policy

Introduction

Over recent years, sustainable development has emerged as a powerful

concept in both environmental and international development communities. It is widely accepted that for society at large to fully understand the issue, science and technology researchers, teachers and policy makers need to embrace environmental sustainability in their working approaches (Teasdale and Zane, 2000). Possey and Dutfield (1996) argue further that, while most people would agree that Western science and technology has changed the way humans live and relate to the world around them, not everyone calls this “progress”.

There are pressing concerns about the impact of practices arising from Western science and technology, and their tendency to replace alternative ways of knowing about the world. In his discussion of the importance of recognizing the traditional resource rights of indigenous communities, Possey (1996) states that it is important to explore the extensive global frameworks that highlight the nexus between science, environmental sustainability and Indigenous Knowledge (IK). He points out that over the past 60 years; there has been a sustained attempt to create a global approach to these issues. *The Universal Declaration of Human Rights* and the *Draft Declaration on the Rights of Indigenous People*, together with *Caring for the Earth*, the *Convention on Biological Diversity* and *Our Common Future* provide a framework for discussions about how humans interact with the Earth’s resources (cf. Raising Awareness of Indigenous Knowledge in science and Technology Education n.d.).

Battiste, Henderson and Youngblood (2000) indicate that, importantly, the rights of indigenous communities over the resources they manage are also recognized by these frameworks. For example, the preamble to the *Convention on Biological Diversity* ‘recognizes the close and traditional dependence of many indigenous and local communities ... on biological resources and the desirability of sharing equitably benefits arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components’ (cf. Raising Awareness of Indigenous Knowledge in science and Technology Education n.d.).

Despite these international guidelines, Western governments, corporations and scientists are increasingly turning their attention to what they see as untapped “natural resources” around the world. As Langton (1998) argues, they overlook the fact that many of these complex and biodiversity-rich resources have long been cared for and managed by indigenous peoples, who

point out that these are not “natural resources” but cultural landscapes. Any attempt to include elements of IK in Western educational systems would need to make clear this perspective (cf. *Raising Awareness of Indigenous Knowledge in Science and Technology Education* n.d.).

As the late Posey (1996) (founder of the International Society for Ethnobiology) said, “there is a danger that in the sudden flurry of interest in indigenous and traditional knowledge, economic, political and environmental issues will dominate, overshadowing the basic human, cultural and scientific rights that are already afforded to local and indigenous communities” (cf. *Raising Awareness of Indigenous Knowledge in science and Technology Education* n.d.).

In his discussion about the importance of rising awareness on the role of IK in sustainable development, Mangetane (2001) states that the oral and “powerless” nature of indigenous knowledge has made it largely invisible to the development community and to the international scientific community. Only recently has it begun to receive significant attention for research purposes and awareness of indigenous peoples). The World Conference on Science (Budapest, 1999) and Atteh (1991) state that scientific and indigenous knowledge (IK) should be integrated in interdisciplinary projects dealing with links between culture, environment, and development; including the conservation of biological diversity, management of natural resources, and an understanding of natural hazards and mitigation of their impact. Various studies have the opinion that local communities and other relevant players need to be involved in the inter-disciplinary projects (cf. World Bank, 2004; Dixon, 2001; Warren, 1991).

Grenier (1998: 34) defines Indigenous Knowledge (IK) as the unique, traditional, and local knowledge existing within, and developed around, specific conditions of women and men indigenous to a particular geographic area. The development of IK systems, covering all aspects of life is a matter of survival to the peoples who generate the indigenous knowledge. IK systems do innovate from within and also internalize, use, and adapt external knowledge to suit the local situation. This implies that IK systems are dynamic, because new knowledge is continuously added, largely through the social networks and the relations between individuals and groups of individuals, and between the groups and nature (cf. Thrupp, 1999; Dewes, 1993; Warren, 1990).

South Africa's government commitment to the promotion of IK has been demonstrated in the development and adoption of the IKS Policy in 2004. The Policy is an enabling framework to stimulate and strengthen the contribution of IK to social and economic development in South Africa. According to the Department of Science and Technology (2004) the main IKS Policy drivers in the South African context include:

- The affirmation of African cultural values in the face of globalization – a clear imperative given the need to promote a positive African identity;
- Practical measures for the development of services provided by IK holders and practitioners, with a particular focus on traditional medicine, but also including areas such as agriculture, indigenous languages and folklore;
- Underpinning the contribution of indigenous knowledge to the economy – the role of indigenous knowledge in employment and wealth creation; and
- Interfaces with other knowledge systems, for example indigenous knowledge, is used together with modern biotechnology in the pharmaceutical industry and other sectors to increase the rate of innovation.

To implement this policy, the following functions, institutions and legislative provisions will be required:

- An Advisory Committee on Indigenous Knowledge Systems, reporting to the Minister of Science and Technology;
- A development function; including, academic and applied research, development and innovation in respect of IKS;
- A recorded system for indigenous knowledge and indigenous knowledge holders; where appropriate, to pro-actively secure their legal rights;

- The promotion of networking structures among practitioners, to be located in the Department of Science and Technology; and
- Legislation to protect intellectual property associated with indigenous knowledge, to be administered by the Department of Trade and Industry.

The adoption of IKS policy in 2004 has seen some notable achievements in terms of realising the five overarching objectives of the IKS policy. These include the affirmation, recognition, promotion, development and the protection of indigenous knowledge. One such achievement is the establishment of the National Indigenous Knowledge Systems Office (NIKSO) in 2005 to ensure that IKS is interfaced within the National Systems of Innovation.

The publication of the IKS Policy represents an important achievement in terms of engaging IKS in the drive to eradicate poverty. Whilst many intervention projects are involved in that noble cause, the IKS Policy provides a basis upon which indigenous knowledge can be used to make more appropriate interventions. However, the successful implementation of the IKS Policy as a tool of promoting sustainable community development will depend on the community awareness and understanding the nature and importance of the IKS Policy for their livelihood.

It is on the basis of this that a pilot study was conducted in the North-West province of South Africa to establish the knowledge and perceptions of local communities on the IKS Policy. It has been argued that most people in the country, especially in the rural areas where the IKS knowledge holders and practitioners are located were not aware of the IKS policy and its implications on their livelihood, especially with regard to the protection of their local knowledge systems from exploitation. This chapter discusses the findings of this study by looking at the following aspects: knowledge and community involvement in IKS related activities; community awareness of IKS and importance of promoting IKS; community awareness of the IKS Policy.

The following section provides the methodology followed in the study.

Methodology

The study on the Knowledge and Perceptions of Local Communities in the

North-West province (South Africa) followed a participatory and multi-disciplinary approach. This took into consideration the community-based and holistic nature of IKS. The community knowledge holders such as traditional healers, farmers, tribal authorities, elders were involved in the research process by taking their views into consideration the selection of study cases, data collection and data analysis and data interpretation including validation of the research findings.

According to Babbie (2004:296) participatory research is important in an indigenous knowledge systems investigation because of the community and cultural- based nature of IKS. Therefore, the inputs of the community knowledge holders and community leaders should be central to the whole research process to achieve the objectives of the study. The researcher is a mere resource in this process. In a participatory research paradigm, conventional research is perceived to be an “elitist model” that reduces the “subjects” of research to “objects” of research.

In this study, most of the aspects studied were investigated from the perspective of the community members themselves rather than that of the researchers. The key informants were provided the opportunity to express their views on the issues under investigation and their opinions were also taken into account during the interpretation of the research findings.

In consultation with community leaders, elders and other key persons in the district municipalities a purposive sample of 250 respondents (170 women and 80 men) participated in the study. Battaglia (2010) defines a purposive sample as a type of non-probability sample in which the elements to be included in the sample are selected by the investigator on the basis of special characteristics of the respondents. Lavrakas (2009) elaborates that it is a sample selected in a deliberative and non-random fashion to achieve a certain goal. In a focus group, for example, you may want to consciously seek out respondents at both ends of a spectrum (as well as some in the middle) to insure that all viewpoints are adequately represented. You might also preferentially recruit subjects who have the best knowledge and experience in an area.

Women were given a high representation in the sample because according to the community leaders, they were the main knowledge holders and custodians of the major activities of community life such as agriculture, health care, food security, natural resource management, etc.

Qualitative research methods such as key-informant interviews, direct observation and focus group discussions formed the core of data collection methods; while a questionnaire was administered to research sample in an effort to collect supportive quantitative data.

Denzin and Lincoln (1994) define qualitative research methods as research methods that focus on gathering nonnumeric information using focus groups, interviews, document analysis, and product analysis. In this study key-informants were interviewed at all stages of the research process as a means to gain in-depth qualitative information on the research problem. This approach is a traditional method of social scientists including anthropologists for extracting cultural knowledge through well-placed individuals in the society. It is often used in situations where access to official records of data is weak or non-existent. Where official records exist, it is used as a means to get further insight by questioning key-people about their modes of life or specific social problems.

Focus group discussions were conducted with randomly selected groups of 6-10 community members. A focus group discussion is a semi-structured interview in which the discussant knows in advance the topics to be covered. The people included were known to have been involved in specific experiences of IKS. Focus groups discussions are different from other types of group interviews in that they focus on a particular topic and they rely on group dynamics in order to generate data. The interaction is mainly between group members themselves and not between the members of the group and the interviewer. Group interaction was used to generate data and as a source of data analysis. The assumption was that there is an interaction that is productive in widening the range of responses, in activating forgotten details of cultural experience/knowledge and in releasing inhibitions that are part and parcel of interviews with individuals.

Qualitative data in the form of audio taped interviews were transcribed and translated from Setswana into English. Interview and participant observation notes were typed and a content analysis conducted. Feldman (1995) defines content analysis as a research tool used to determine the presence of certain words or concepts within texts or sets of texts. Researchers quantify and analyse the presence, meanings and relationships of such words and concepts, then make inferences about the messages within the texts, the writer(s), the audience, and even the culture and time of which these are a part. Texts can be defined broadly as books, book chapters,

essays, interviews, discussions and discussion papers, newspaper headlines and newspaper articles, historical documents, speeches, conversations, advertising, theatre, informal conversations, or really any occurrence of communicative language.

Quantitative data in the form of questionnaires were checked and coded. Gelsne and Peshkin (1992) define quantitative data as numerical data (or quantitative data) is data measured or identified on a numerical scale. Numerical data can be analysed using statistical methods, and results can be displayed using tables, charts, histograms and graphs. The data was analysed using SPSS/PC+.

In consultation with the community knowledge holders' validation checks were conducted through all phases of the research to ensure the highest level of data accuracy. Information which was unclear or missing was clarified or collected by returning to informants and reviewing issues and concepts.

The following sections present the research results.

Presentation and Discussion of Research Results

Knowledge and Community Involvement in IKS Activities

The research asked the respondents to indicate their own understanding of "what is indigenous knowledge?" The majority of the respondents (more than 80 percent) indicated that indigenous knowledge involves the knowledge and skills which people in the community have been using over the years to survive in the absence of western knowledge. This included their knowledge of plants, animals and insects used for food security, nutrition, medicine; knowledge of agriculture, fishing, managing and protecting natural resources and environmental disasters, conflict resolution and management, childbirth, community governance, post-harvest, etc.

On the question: Who were mostly involved in IK- based activities? More than 70 per cent of the respondents indicated that women and the elderly (over 45 years of age) were mostly involved in IKS related activities. The latter included traditional medicine, pottery, basketry, mixed cropping farming, beer brewing, post-harvest farming activities including food preservation, etc. The respondents were also asked to explain the importance of IKS in the community? More than 90 per cent of the respondents (both male and female) reported that given limited government support and limited

modern service facilities in most communities, IKS was important and the basis for the survival of many people in most local communities. Focus group discussions also revealed that the significance of IKS was not only food security and poverty alleviation aspects but had social and spiritual role in the lives of the communities. For example, in Madibogo Village (Ratlou Local Municipality), there was a cultural village where the community members, especially young people used it to perform traditional dances and music. In the absence of western entertainment, traditional music was one of the most important IK related activities reported in most of the rural areas in the North-West province. For instance, it was observed that in the Madikwe area among the Batlokwa and the Bakwena, music was played at social gatherings when traditional beer was drunk, at wedding ceremonies, initiation schools or where there were traditional gatherings for men and when boys were herding cattle.

Interviews, focus group discussions and observation, showed that there was also a wide utilization of IKS among knowledge holders and community members including the youth in indigenous games such as *Morabaraba*, *Dibeke*, *Khokho*, *ugqophu* and *Khati*. The respondent community members explained that these indigenous sports and games helped them in physical development, reinforcement of the community values, improved interaction between communities and above all kept young people busy away from criminal activities and risk behaviours.

Farming was the main activity mentioned in all the study communities. In the rainy season in summer, they planted indigenous vegetables, sorghum and maize. They also collected a variety of wild vegetables and fruits. Mixed cropping was traditionally practiced in most of the study communities. This involved planting various crops on the same field to ensure food security throughout the year because the different crops planted such as maize, sorghum, sweet potatoes, beans, peanuts, etc. were harvested at different time of the year. Some of the local farmers, especially women, dried some of the vegetables and fruits to preserve them for future use. Certain plants such as legumes improved the soil by fixing nitrogen into the soil. The communities were also rich in livestock such as cattle, pigs, goats and sheep. Women in some local communities made traditional beer using sorghum and maize. They also made Biltong (salty dried meat) from beef during wedding celebrations and older men from the village made sour milk from the cow milk.

Community IKS Awareness and Importance of IKS Promotion

The respondents were asked the question: What is the importance of promoting awareness of IKS related activities in the community?

The study revealed that more than 70 per cent of the respondents (male and female) suggested that there was need to educate more people in the community to know and use these IKS activities for sustainable community livelihood. On the question regarding who should promote IKS activities in the local communities, the findings showed that more than 90 per cent of the respondents mentioned that women, the elderly and traditional leaders should be the foundation of promoting IKS activities in the communities. Interviews with respondents and information from focus group discussions indicated that whereas every stakeholder including government and other development agencies should be involved but women, the elderly and the traditional leaders should be the foundation because they were the custodians of the local knowledge systems. Focus group discussions, direct observation and in-depth interviews with community knowledge holders revealed the following on why women should be the foundation of promoting IK and awareness.

In arid and semi-arid areas of the province such as Lehurutse, Ganyesa, etc. where animal husbandry is the most important indigenous farming activity, focus group discussions showed that elderly women (over 40 years of age) had considerable indigenous knowledge about many aspects of animal husbandry, veterinary medicine and range management. As in other parts of Africa, this indigenous knowledge often “includes various aspects of livestock production, such as animal management, hygiene, feeding, watering and use of animal products”. In terms of community knowledge, mostly women stated that women knew more about animals than men because in most of the Batswana communities (Batswana are the predominant ethnic group in the province), women were responsible for the daily care of animals, their reproduction and doctoring. As a result, they in general had more in-depth knowledge of traditional medicine and pharmaceutical practices than do men. As in other parts of Africa, interviews in Lekhupung village revealed that men tended to turn to their wives for information on how many calves had been born or had died, or when the last dips had taken place. As in other parts of Africa, in Ganyesa village, the study found that women had a wide range of knowledge on animal health problems and a set of traditional solutions. Some practices known by women, particularly those

dealing with preventing and curing diarrhoea and parasitic infections, have been found to have real therapeutic or prophylactic value. It was on the basis of this that most rural women and poorer households in the study communities preferred to rely on such practices and to seek out traditional livestock healers rather than to consult government services. In some villages such as Madibogo, the study found that women were responsible for the feeding of animals in a cut-and-carry system. As a result, they have detailed knowledge about the best kinds of feed for each season by type of animal. They will often know that lactating animals require high levels of protein (cf. *Women's Indigenous Knowledge of Livestock Production*, n.d.).

Moreover, as in other parts of Africa, women generally were found to “be in charge of processing animal products, which is another area of indigenous expertise. Where women are involved in milk processing and marketing, they have thorough knowledge of the fermentation process, including the effects of temperature and acidity. Contrary to some assumptions, women also were knowledgeable about dairy hygiene. The women in the study areas washed and sun-dried the utensils they used and the containers in which milk was stored; they also practiced mould prevention and personal and environmental cleanliness. As in other parts of Africa, community knowledge holders stated that mothers transmitted this valuable local knowledge and techniques to their daughters and sometimes also to their sons”. They also had a “comprehensive understanding of natural water sources, on which their animals depended, and of seasonal variations in water quantity and quality. They also had ways of recycling water where it is scarce” (cf. *Women's Indigenous Knowledge of Livestock Production*, n.d.).

The respondents were asked: What is the best way of promoting IK and awareness in the community?

More than 70 per cent of the respondents (both men and women) had the view that the best ways of promoting knowledge and awareness about IKS activities in their local community, was through the use of mass media (radio, newspaper, etc). Twenty percent reported that organizing workshops for local community members and other stakeholders was the best ways of promoting knowledge and awareness about IKS activities. Only 7 per cent of the respondents mentioned sending local experts on IKS to talk to household members.

A question was asked to the respondents: What is your opinion on the incorporation of IKS practitioners in the formal educational system in South

Africa? More than 80 per cent of the respondents were in favour of incorporating IKS practitioners and knowledge holders in the formal educational system. The arguments to support this view were as follows:

Colonialism and apartheid in South Africa marginalized African indigenous knowledge systems including the knowledge holders and practitioners. Their knowledge was considered primitive and not scientific hence were not part of the current formal educational system. The dominant system of knowledge at pedagogy level has been Western. The latter has failed to bring sustainable development in local communities because it does not build up on what the people themselves as beneficiaries of that development know including their cultural values and languages. They argued that any development strategy which ignores the cultural experiences of the target communities cannot be sustainable.

The IK practitioners, both man and women argued that for indigenous knowledge to have significant bearing on the sustainable development African local communities, it must gain some currency into the formal education system. This is the social institution officially chartered to organize learning, certify knowledge and which can produce IKS skilled human capital. Incorporating African IKS and its practitioners as custodians of IKS into the formal educational curriculum has the following advantages in transforming the current formal educational and knowledge production system in South Africa and Africa at large:

- (i) Bringing IK practitioners into the classroom can help to produce an African human capital with sensitive and caring values and attitudes and, thereby, promote a vision of a sustainable future because African IKS practitioners have lived in harmony with the environment and have utilized local resources without impairing on nature's capacity to regenerate them;
- (ii) IK is held by the IKS practitioners as farmers, traditional healers, herbalists, midwives, rain makers, etc. It is stored in various forms which include traditional customs, folk stories, folk songs, folk dramas, legends, proverbs, myths, etc. The use of these cultural items through the IK practitioners as resources in the formal educational curriculum can be very effective in bringing indigenous knowledge alive for the students. Students will already be familiar with some

aspects of indigenous culture and, therefore, may find it interesting to learn more about it through these cultural forms and through the community knowledge holders. This will promote a new educational paradigm whereby learners and students could themselves be actively involved in collection of folk stories, folk songs, legends, proverbs, etc., that are retold in their community;

- (iii) The IKS practitioners emphasized that in view of its potential value for sustainable development, it is necessary to preserve and promote indigenous knowledge for the benefit of future generations. According to them the best way to do this would be through the integration of IK into the educational curriculum. This would encourage students to learn from their parents, grandparents and other adults in the community, and to appreciate and respect their knowledge. Such a relationship between young and older generations could help to mitigate the generation gap and help develop intergenerational harmony. Local people, especially the IK practitioners, for the first time perhaps, would also get an opportunity to participate in curriculum development and formal education of their children. The integration of IK into the educational curriculum would thus enable educational institutions, particularly at tertiary level, to act as agencies for transferring the culture of the society from one generation to the next;
- (iv) IKS practitioners will provide learners and students with an opportunity to learn much from fieldwork in the local area. For instance, to be able to understand the relationship between local people, soils, plants, animals and insects, learners need to identify the plants, animal and soil types in the local area. One way to get a preliminary knowledge of plants and soil types in the local environment is to consult IKS practitioners and invite them to teach students in the field.

Community Awareness about IKS Policy

The South African government adoption of the Indigenous Knowledge Systems (IKS) Policy in 2004 was recognition of IKS on its own terms. The policy seeks to facilitate a better understanding of the historical and cultural

context, and worth of indigenous and local communities. It is an important policy that brings together key drivers that are catalysts for the development and economic viability of holders and practitioners of IKS. It is also a policy which can respond positively to a rapidly changing environment, and through which indigenous and local communities and individuals can share equitably in the social and economic opportunities of South Africa. It is on the basis of this consideration that the study wanted to establish the knowledge and awareness including perceptions of communities towards the policy. The results are discussed below.

On the issue of community awareness about IKS policy, the majority of respondents (85 per cent male and 96 per cent female) indicated that they had never heard of the IKS policy. When asked whether the government was doing enough to promote IKS and the IKS policy, less than 10 per cent of respondents mentioned that the government was doing enough to promote IKS and the IKS policy in local communities as compared to the majority who said that the government was not doing enough. They wanted more information about the policy and how its implications on their livelihood.

The respondents were asked to indicate the interventions to be undertaken by different stakeholders to promote IKS and the IKS Policy. The following were some of the interventions that the respondents suggested: create awareness on the IKS policy by educating the general public through the mass media, e.g. television, radio programmes, newspapers, pamphlets, etc. using indigenous languages; government should work with community gate keepers including knowledge holders and other stakeholders to find strategies on promoting IKS policy awareness; organize seminars, workshops, meetings, about IKS policy; visits to schools; inform the young generation about IKS and how to use IKS activities in the community; incorporate IKS in the educational curriculum.

Conclusion

This study has shown that indigenous knowledge plays a crucial role in the livelihood of African local communities in the pilot study province. The government adoption of the IKS policy in 2004 is testimony to the significance of IKS in the sustainable development of the country. It also revealed that women had a crucial role in the promotion of IKS and IKS awareness in the local communities due to their wide knowledge and use of

IKS in their daily activities for sustainable community livelihood. They demonstrated a wide range of IKS in different aspects of community life, i.e. health, food security, natural resource management, agriculture, post harvest technologies, etc. Therefore, any intervention to promote IKS for sustainable development and livelihood cannot ignore their contribution. It is on the basis of this consideration that they should be informed and made aware of the importance of the IKS policy and its implications on their role as custodians of these important community-based knowledge systems.

The chapter recommends the following: the different IKS stakeholders, especially women, should be informed about the IKS policy through workshops, mass media, etc. so that they can be actively involved in its implementation in the local communities; in order to avoid the duplication of efforts in promoting IKS and the IKS policy, efforts should be made to promote and build IKS networks and partnerships among the various IKS stakeholders to ensure maximum and efficient utilisation of the existing resources and share experiences; the efforts which have started to incorporate IKS in the formal educational system by different stakeholders in the country should be speeded and supported . IKS will only be sustainable if it becomes part of the formal education system; the efforts to formally recognize and certify the knowledge holders and IKS practitioners should also be supported. The incorporation of IKS practitioners in the formal education system will help to narrow the gap between learning and living, mitigate generational gaps and bring respect and recognition of IKS as an important tool for sustainable development. In this regard the responsible structures within and outside government should organise regular meetings with the various IKS stakeholders including community knowledge holders and practitioners to share information, plan and coordinate their activities together in the interest of IKS development.

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Culture, Unity and Sustainable Development in Africa: Research and Policy Challenges



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This chapter elucidates how cultural cooperation in Africa could be an important tool for sustainable development and unity. Departing from the premise that cultural cooperation is based on a resource which is locally-based, it argues that cultural co-operation should become an integral part of the overall national development policy planning and continental research and development policy agendas. It is of paramount importance that African countries should begin cooperating with what is already there, i.e. the African indigenous knowledge and innovation systems – constituted by indigenous philosophies and languages. A proper analysis and planning of these cultural potentialities is required if they are to be developed and linked to the demands of modern science and technology. From this perspective, African policy makers should include in their policies statements on the cultural dimensions of development, including the ways and means of implementing such cultural dimensions. This approach will give all development efforts in the continent a human face.

Key words: Culture, unity, sustainable development, research, policy challenges, African Union

1. Introduction

The advent of the African Union (AU) can be described as an event of great magnitude in the institutional transformation and sustainable development of

the continent. On 09 September 1999, the African heads of state and government issued a declaration (the Sirte Declaration) calling for the establishment of an African union with a view, *inter alia*, to accelerate the process of integrating the continent to enable it to play its rightful role in the global economy.

The delicate challenges which confronted the former Organization of African Unity (OAU) were economic cooperation among African states, racial and linguistic differences. A number of factors made these challenges difficult for the OAU to handle. First, the OAU was calling for unity at a time when most African countries were still busy trying to curve out national identities after the political liberation of their countries. Secondly, colonialism made linguistic and racial situation even more complicated by dividing the entire continent into French, English and Portuguese-speaking area. Odhiambo (1983) argues correctly that under such circumstances, the road to unity could not be through political consensus only because given the existing ideological differences at the time, a political approach was more likely to sharpen divisions than promote unity.

It was on the basis of this consideration that the late former President of Tanzania Mwalimu Julius Nyerere (1974) stated that the African masses should not be satisfied with visits between heads of state but should seek permanent cultural contacts among African people themselves. It is latter themselves who will be able to establish lasting brother/sisterhood relations for collective peace and prosperity in the continent.

In this study culture is viewed as a dynamic logical consequence of the accumulation of knowledge and practical experience of human society during different epochs and under different modes of production (Gabriel, 2001).

However, Patrosa (2005) states that in order for cultural cooperation to be an effective tool in uniting Africans, the cultural dimension of the sustainable socio-economic development of the Africa must first be clearly defined. This is due to the fact that often certain exotic elements of culture, such as dance and sports, are taken to be the easiest ways of bringing people together, whereas they can have the opposite effect. She elaborates that experiences during continental events such as the Africa cup of nations and other continental sport events, have shown how in certain circumstances sport could revive old divisions and animosities among countries instead of bringing the people together. Alute (2004) elaborates that there were certain instances, where football clubs from some African countries carried their own food and water and had nothing to do with their hosts. This behaviour

does not encourage the type of brother/sisterhood envisage in bringing African unity, let alone good sportsmanship.

The objective of this study is to examine and elucidate how cultural co-operation in Africa can be an important tool for sustainable development and unity. The rest of the chapter is arranged as follows: Section Two provides the methodology, including the conceptual framework. Survey of various supportive evidences is examined retrospectively in Section Three. Section Four presents conclusion, policy implications and recommendations.

2. Methodology

This was a survey of the research and policy challenges facing the issues of culture, unity and sustainable development in Africa. The study was based on the examination of secondary sources. According to Black (1996) secondary data refer to information gathered by someone other than the researcher conducting the current study. Such data can be internal or external to the organization and accessed through the internet or perusal of recorded or published information. The study used relevant sources of secondary data, including books and periodicals, government and non-governmental publications related to the research problem, etc. Taking into consideration the comprehensive nature of the study, the researchers took the following advantages of examination of secondary data: Secondary data were available which were appropriate and adequate to draw conclusions; not necessary. It was far cheaper in this case to collect secondary data than to obtain primary data; the time involved in searching secondary sources was much less than that needed to complete primary data collection.

The following section presents and discusses the findings.

3. Presentation of and Discussion of Findings

3.1 The Colonial Legacy and African Cultural Scholarship

Odhiambo (1983) argues that due to the colonial past there has been a tendency among African scholars to analyse African cultures from a comparative perspective. He elaborates this by stating that it seems the remarks made by early European adventurers regarding the absence of remains of material culture in Africa as well as statements by Eurocentric historians concerning Africa's backwardness and lack of history still haunt African scholars. According to him, African scholarship on Africa seems to

be constantly on the defensive. African scholars are bent on proving that Africa was just as cultured and civilized as the rest of the world. Hence, they tend to dwell on the uniqueness of African culture and how it was defiled by westernization. Furthermore, this desire has also led some African scholars with more nationalistic pretensions to imagine a utopian Africa that supposedly existed in the past and to which all Africans including those in the Diaspora should look back for aspirations. Paradoxically, in their attempt to avoid Eurocentric approaches with regard to cultural issues, these African scholars tend to adopt European models to discuss what are purely African ideas, concepts and moral aesthetic values arising out of concrete African economic and environmental conditions (Zabadieli, 2004; Ehret, 2002; Katanga, 2001).

On the basis these limitations, what is needed is a scientific analysis of the nature of African culture in the African context. Kagusa (2000) argues that African scholars should not begin by relating their cultures to others without a proper understanding and appreciation of their own cultures as well as the interrelationship of these cultures within the context of African history. She acknowledges the fact that European colonialism considerably distorted African cultural identity and contributed to its subsequent loss of authenticity. Lye (2002) explains that colonial and capitalist penetration in Africa occurred at a point in time when African pre-capitalist societies were in the process of formation and when small ethnic groups, were in fact coming together to form stronger and more viable political and economic units.

Kjekhus (1977) provides the examples of mighty kingdoms like that of the Buganda in Uganda and the Karagwe in Tanzania. He adds that even stateless people like the Masai of East Africa, were evolving into entities united around one culture and one language. Colonialism came at a time when those cultural barriers often said to separate one African ethnic group from another were breaking down under increased economic pressure, and constant trade links had been established between ethnic groups with resulting cultural links. These ties were displayed by the friendly trading relations between ethnic groups such as the Nyamwezi in the interior and the coastal Zaramo, between the Haya of Western Lake Victoria-Nyanza and the Luos of Eastern Lake Nyanza (Stuhlmann, 1892).

Nevertheless, this political ascendancy, as well as the ensuing economic co-operation, and cultural contacts, were thwarted by the defeat of the African indigenous communities at the hands of what were then the

technically superior forces of Europe (Page, 2001). The following section looks at the challenges of post-independence Africa in bringing about cultural integration for sustainable socio-economic development.

3.2 The Challenges of Post- Independence Cultural Integration in Africa

Steinmann (1992) states that immediately following political independence, the African countries realized that after centuries of oppression and injustice at the hands of the European colonists, their most pressing task was to identify the cultural characteristics that had survived the period of oppression. Once this had been done, it was necessary to identify the cultural traits that were authentically African but at the same time the least likely to be a source of controversy among the different ethnic groups. The main challenge after winning political independence was to give the new nations a cultural identity that transcends their diverse ethnic and cultural differences.

The post-independence governments in Africa became increasingly aware that ethnic differences had been nurtured by the colonial powers to ensure that the African people did not unite against them. They were used to create animosity among different groups to the extent that many neighbouring peoples came to believe that they were indeed enemies. However, in the subsequent efforts by African governments to find such common traits, often the most insignificant cultural elements were chosen to represent and promote African cultural identity. Drumming and dancing, African costumes and sports were often singled out. For instance, there were little policy efforts in promoting African indigenous languages even when certain indigenous languages had already emerged by independence as vehicles of wider communication. These radical steps were partly avoided for fear of leading people back to tribal warfare and civil war (Arnold, 2002).

Bakari (2002) states that among the consequences of colonialism were that at independence African countries found themselves in multicultural situations. This meant that there were many languages being spoken in the country, without any signs, however, that the people speaking the diverse languages had many fundamental differences in their cultural backgrounds. There are divergent views on this challenge among the different African countries and scholars (Luckmann, 1999). Some countries such as Tanzania came into independence with the belief that this situation is a positive phenomenon. They believe that the existence of many cultural groups provided a pool from which a united nation can draw experience for the

establishment of a single strong national identity. The perception was that cultural diversity becomes dangerous only when it is used as a source of segregation and discrimination. This happens when cultural traits such as religions, ethnic affiliation and even language are given overdue emphasis outside of the overall socio-economic framework of society (Bloom, 1999; Cassirer, 1994).

Aaron (2003) notes that after political independence most African countries also felt an urgent need for promoting socio-economic development, but the concept of sustainable development and remained unclear. Sadik (2000) adds that development meant modernizing their societies to be like the western countries. As a result, many efforts were concentrated on the construction of socio-economic infrastructure in order to catch up with the level of technology prevailing in the Western countries, often at the expense of the satisfaction of basic human and cultural needs of the African poor masses such as water, housing, education, sanitation, employment, etc. It is on the basis of this perspective that former President of Zambia, Dr. Kenneth Kaunda of Zambia defined development in the following terms (Hatch, 1976):

Development of a country does not merely consist of the exploitation of its natural material wealth. This is only one facet. It also includes the evolution and refinement of the cultural, psychological and spiritual aspects of the nation these latter characteristics are, to a large extent, the ones which give a nation its distinguishing characteristics and personality.

Unfortunately instead of adopting Dr Kaunda's conception of development, most African countries tended to promote economic growth at the expense of cultural growth, and as a result most African countries found themselves with infrastructure such as modern airports, cinema theatres, etc, that were underutilized because they had no relevance to the developmental especially the cultural needs of the people. Most often, development projects were initiated and implemented without consultation with the beneficiaries or in complete opposition to what the particular community felt to be its important needs. Such unfortunate situations arise as a result of a lack of proper understanding of culture as a tool of sustainable development. For many development planners and development agencies culture does not extend beyond drums and sports entertainments (Odhiambo, 1983).

It was on the basis of this that the late former President of Tanzania Mwalimu Nyerere (1962), as early as 1962, voiced the following concern:

Of all the crimes of colonialism there is none worse than the attempt to make us believe that we had no indigenous culture to guide the aspirations of our socio-economic development.

Gabriel (2001) states that the shortcomings of post- independence development strategies in Africa can be directly attributed to this lack of understanding of what culture is as well as its relevance to the socio-economic development aspirations that were needed in the post-independence period. There is increasing realization in Africa that culture has an important part to play in the socio-economic development of the continent. Thus culture is viewed not as static and oriented towards the past, but as a demonstration of the present and an aspiration towards the future. According to this perspective, culture is a logical consequence of the accumulation of knowledge and practical experience of human society during different epochs and under different modes of production.

Culture thus defined is an expression of a people's way of life and values as well as institutions created to perpetuate those values and way of life (Geertz, 1993). As such, culture is the essence and spirit of any nation and a basic requisite for national development plans. If it is to be meaningful, development in Africa must first of all aim to raise the present standards of living of the masses by providing basic material and cultural needs of human society, especially for the marginalized such as sufficient food, shelter, clothing, water, health, education, employment, sanitation, political participation, freedom of movement and social security. This kind of development is first of all human centred and the policy strategies taken to transform the human environment must consider that people are not mere objects but the subjects of their socio-economic development (Tshikuku, 2001).

Modernization theorists such as Ingelhart (1997) and Black (1996) have always argued that African people's attachment to outmoded cultural traits and archaic traditions are the causes of their underdevelopment. However, recent research on African indigenous knowledge and innovation systems has shown the opposite. Lack of sustainable development in Africa is partly due to the neglect and marginalization of Africa's rich indigenous knowledge systems. Many development projects initiated from outside local

communities have foundered, because they were conceived without taking into account the peoples knowledge and experiences (African Development Forum, 2004).

This tendency can be traced back to the period of colonialism when development was always interpreted in terms of countries outside Africa. For almost a century no attempt was made to relate development efforts to the basic needs of the local people and communities. All efforts were directed towards satisfying the needs of the colonial powers. Rodney (1974) argues that in order to remedy this situation, certain fundamental questions must be asked with regard to any sustainable development project. First of all, for whom is the project intended? Secondly, what is the capacity of the individuals in that society to assimilate the new development experience? It is equally imperative to identify who the agents and implementers of the project are as well as their cultural background. The latter will determine to a great extent the degree to which certain foreign ideas will be accepted in a particular local community.

Simon (2000) states that culture is capable of shaping direction of economic development by setting standards of moral values by commenting on the efforts of local community through linguistic and artistic forms of expression and by presenting examples for the human race from past experience. It therefore becomes apparent that when we think of bringing about any type of socio- economic change we must first all identify the cultural implications of these changes. This means that we must take into considerations the relationship that exists between the society and the environment and the society and the individual. We must also examine how these factors interact to produce the cultural forms mentioned above. If such considerations are not made at the time the development plans are conceived, the people involved often reject or underestimate the value of the plans since they feel their basic interests have been ignored (Dieterlen, 1995).

3.3 The Necessity of Planning and Financing Cultural Activities

CreativeCity.Ca (2009) states that if culture is to be integrated into the development process it requires thorough planning of its associated activities. There are still too few scholars, policy makers and development planners who recognize this necessity and who are not prey to the misconception that culture is spontaneous and hence does not need proper

planning and financing. Experience has proved the contrary: cultural promotion and preservation are expensive and demanding endeavours for many countries. As a result of the transitional nature of many cultural undertakings a number of cultural activities lend themselves to joint planning and financing.

The joint planning of activities help to alleviate the problem of training cultural amateurs and obtaining the costly equipment needed for cultural research. Katunzi (2000) emphasizes the need for Africa as a continent needs to promote the establishment of regional cultural institutes similar to the African cultural institute in Dakar, Senegal. These institutes could be resource centres for cultural promotion strategies as well as clearing houses for materials both in the form of documents and artefacts. They would also serve as the backbones of cultural action in the respective regions. Sadik (2000) shows that at present there is only one centre for research on Oral Traditions and African languages to which six countries of the Eastern African Region belong, namely Burundi, Ethiopia, Madagascar, Sudan, Somalia, and Tanzania. However, current contributions to the centre are rather sporadic and it would seem that the importance of maintaining such an institution is not being given the priority it deserves.

Also, Odhiambo (1983) argues that history provides Africans with the most obvious point of departure for any kind of cultural cooperation. All regions of the continent had at one time experienced , what might be called a culture of the oppressed whereby the working people have been constantly alienated from the fruits of their labour and therefore from the capacity to refine their culture. He identifies two specific kinds of culture in society: that of the oppressor, who is intent on imposing his patterns of consumption as a cultural model, and that of the oppressed who create a fighting, clandestine culture. From this common point of departure, therefore African countries should aspire to a new cultural dialogue at the national, regional and continental levels.

The dialogue proposed in this chapter, is first of all the one dialogue with the African people themselves, in which they will be given a voice to express their cultural needs instead of having their needs dictated to them. For instance, the fishermen of all sides of Lake Victoria should have the opportunity to sing their joys and sorrows without paying attention to existing political boundaries separating them. This assumes that these people will have a chance to exchange cultural experiences with their neighbours and that such exchange will incite them to go beyond their political borders.

Observation and experience have shown that often people in most African countries know cultural groups from abroad better than the music or dance of people in the next neighbouring country. The paper therefore, proposes a policy that will enable an Africa artist and craftsman to display freely his or her talents to others around him or her in the country, region and continent; the talents which have been imprisoned within the confines of his or her village only. In order for this to happen, countries in the various African regions must take stock of what the people possess in the form of indigenous cultural resources and to what extent they have access to those resources.

Kibelo (2006) reiterates that the basis for the above-mentioned transnational cultural exchange in Africa already exists because various ethnic groups live within and across countries. For example, the Luos are found in Tanzania, Kenya and Uganda; the Digos in Kenya and Tanzania; Masai in Kenya and Tanzania; Samburus in Kenya and Uganda; the Chewas in Malawi and Zambia; the Ewes in Ghana and Togo; the Hausa and Fulani in various West African countries including Nigeria, Guinea, Niger, Chad, Northern Cameroon, etc.; the Nyanja in Malawi and Tanzania; Makonde in Tanzania and Mozambique; the Batswana in South Africa, Botswana, Namibia and Zambia; the Ngoni in Malawi, Tanzania and Mozambique.

This means that all these countries already have complex and interwoven cultural relationships, in some cases involving kingship and intermarriage among people which cannot be ignored. Another unifying factor is that countries that were grouped together under the same colonial rule developed certain similar social and cultural systems, as Francophone, Anglophone and Lusophone, etc. These colonial combinations were both economic and cultural. They were cultural in the sense that they made the people in these colonial territories feel they were one, even if it meant suffering under one oppressor. More important, they encouraged the establishment of international cultural contacts. For example, association like the East African Arts Association and other similar cultural associations and some of them have even survived the colonial era. The publishing houses such as the East African Publishing House were created under colonial rule usually served the whole area, thus disseminating culture beyond territorial boundaries (Odhiambo, 1983).

Arnold (2000) states that European Christian missionaries' efforts to have the bible translated into African languages spread further this common awareness within the regions and across countries. These administrative

groupings resulted in the adoption of the colonial language and of many continental cultural traits by the countries under a particular colonial rule. For example, French language under French and Belgian colonial rule; and the adoption of the English language, British school system and even religious orientation by those countries under British rule. After political independence, such similarities in colonial rule tended to elicit similar reactions among the former colonized countries, motivating them to create similar cultural institutions in either in imitation or rejection of their former masters' culture. This basis for cultural co-operation in the area must now be reviewed in order to determine what structures remain and how such structures could be made to serve the present day needs of post-colonial Africa.

3.4 The Challenges of Promoting Culture for Sustainable Development in Post-Colonial Africa

Herderson (1999) indicates that post-Colonial African countries have since political independence been attempting to promote cultural awareness among their people. These efforts have taken different approaches. One of which is the introduction of cultural subjects in schools and teachers' colleges such as traditional music and dance, traditional poetry, arts and crafts, African traditions and customs, even African morals and etiquette. Most of the countries have also instituted festivals and days of celebration during which the cultural spirit of the nation is allowed to grow and blossom.

Moreover, many African traditions formerly prohibited during colonial rule have now been revived and are flourishing, penetrating even such forbidden places as the church. Efforts to promote cultural awareness are also reflected in an increased concern for the promotion of cultural heritage. In most African countries, one finds various types of museums, e.g. political museum, a natural history museum and a museum of traditional music. For instance, Kenya prides itself on the magnificent Louis Leaky Memorial Institute of Palaeontology and Archaeology in Nairobi as well as the famous Corindon Museum. In Tanzania, encouraged by anthropological finds such as the Zinjanthropus and the latest steel work camp in the Kagera region, has expanded its archaeological research efforts to cover new areas (Odhiambo, 1983).

World Bank (2000) argues that initiatives in these areas of cultural promotion have their shortcomings. The most important of which is the

absence of cooperation between countries. Each country has the tendency to go it alone even when it is clear that cooperation could help to conserve meagre human and financial resources, as well as the cement contacts among people in the region and the continent at large. To date, most African countries still have closer contacts with their former colonial powers and other foreign countries than with each other. African countries still rely heavily on the Western countries for the recruitment of university tutors and even simple things such as book exchanges take place with the Western countries instead of among African libraries.

Patrosa (2005) argues that it has recently become fashionable to believe, and not without some justification, that most of the worlds present problems could be solved if there was a genuine dialogue between the developing and developed world. However, there are questions that must be answered before any such dialogue could take place. One such question involves exactly what Africa plans to discuss with the economically powerful countries? They must first of all begin by listening to each other, before trying to open a dialogue with powerful nations, if the efforts to promote cultural cooperation in the various regions are to have any long- lasting effects: Africa has to unite its own voices before speaking out.

Katunzi (2000) emphasizes that cultural agreements are one example of Africa's efforts to begin such a dialogue. These could be generally operated through cultural protocols signed between countries and specifying special fields of cooperation. However, one must ensure that such agreements are put into practice and implemented, which is not always done. Experience has shown that often these agreements are drawn up without recourse to cultural experts who could advice on their practical implementations. In other cases limited financial means prevent the practical fulfilment of such agreements. For example, the latter often involve the exchange of groups of performances necessitating the expenditure of large sums of foreign currency. Since very few people view such exchanges as a way of promoting economic progress, they are given low priority in the distribution of available resources.

If the role of culture in promoting sustainable socio-economic development among the masses were stressed instead of the leisure of the exotic aspects of cultural exchange, such agreements might have more far-reaching consequences. To date, dance, theatre, and the fine and graphic arts are still seen as entertainment for the upper classes rather than expressions of

a social and philosophical life-style than can serve as motivation machinery for production (Bakari, 2002).

3.5 Research and Policy Challenges for Inter-African Cultural, Technological and Scientific Cooperation

Canada (2009) states that taking into consideration the perspective that the culture of any nation is in constant evolution; there is a need to examine the best ways of promoting cultural co-operation and exchange among African countries. Policy strategies for cultural co-operation must first of all recognize the cultural diversity existing in continent and treat it as a means of enlarging the cultural base of the in continent. It is only then that Africa will develop a cultural identity that transcends not only the artificial political frontiers but racial and ethnic boundaries as well.

One way to accomplish this is to enforce African Cultural Recommendation No 36 of the former Organization of African Unity (OAU), which states that cultural exchanges contribute to the mutual enrichment of cultures, to understanding among men and to peace between states. Geertz (1993) emphasizes that such exchanges must take place between ordinary people. The sporting authorities in Africa have taken the lead in this respect by bringing football association and clubs of the youth within and across regions together for sports activities. However, the concern is that such associations have not yet been formed in the field of arts and crafts.

Gabriel (2001) notes that the trade and/ or agricultural shows that exist at present in most of the African countries and that attract many people, also provide an excellent forum for exhibitions of arts and crafts from various African countries. This is explained by the eagerness of the African masses to exchange and expose those concerned to the cultural development efforts being carried out in their respective countries. Also, these efforts are a means of weighing ones own efforts and establishing new targets for development. These cultural visits also enable people to learn from their neighbours' success as well as failures.

Bakari (2002) adds that the free exchange of sportsmen, artist, young people and women can serve as motivating force for socio-economic change as people discuss together new ways of tackling community problems such as ignorance, poverty and diseases. Finally, this kind of exchange can enable people to cross continental boundaries without having to pass through complicated bureaucratic immigration, formalities, another means of

promoting spirit of unity required to inspire a mood of peaceful co-existence among countries. Similar activities include student/teacher exchange, institutional exchanges, amateur institutional exchanges and exchanges at a governmental level.

Odhiambo (1983) provides examples of student/ teacher exchanges, which existed during the period of the erstwhile East African community whereby each of the three sister universities of East Africa, i.e. Nairobi, Dar es Salaam and Makerere used to reserve rooms for students from other partner countries. They also exchanged lecturers, especially in the arts areas. These arrangements helped to create a very useful understanding among the prospective scholars and leaders of the region as well as establishing a base for constant contact among the people of East Africa. The exchange system that existed between these former three sister universities need to be revived and expanded to include more countries in the continent. There is also a great desire to see the revival/and or establishment of amateur associations linking African countries. Institutions such as the East African Art Association, the East Central African Athletic board, Makerere University and Mweka College in Tanzania's joint training programmes for student of library science and wild life, as well as religious organizations and associations, are all important in establishing the kind of permanent human contacts.

Kibelo (2006) commends the initiatives started in East Africa whereby the permanent secretaries of the ministries of culture have been meeting to exchange experiences in the management and administration of cultural development in their respective countries. These meeting provide a forum for top policy makers to discuss cultural policies and their implementation in the region as a whole. These meetings need to be expanded to include other African countries and formalized and perhaps give rise to a more permanent institutions along the lines of the African cultural institute, which among its other accomplishments, is largely responsible for the initiative of the meeting of the permanent secretaries.

According to Ambali (2005), the African Union (AU) puts emphasis on the role that Science and Technology (S&T) and innovation can play towards Africa's socio-economic development. Key issues for consideration are Africa's capacity to use S&T for socio-economic development. The UN Economic Commission for Africa (ECA) promotes the use of science, technology and innovation for Africa's development, through policy analysis, advocacy and capacity building of its member States.

These initiatives are based on the increasing realization in Africa, especially among policy makers, that in today's modern world, scientific and technological know-how are major instruments of socio-economic change. Africa and other developing parts of the world are behind the industrialized world. It is advised that these developing countries should follow the steps of the advanced countries in achieving this technological development. This is easier said than done because such technology and scientific knowledge often come without any guarantee that they will be relevant and appropriate to the specific needs and environment of the developing countries including Africa.

Odhiambo (1983) argues that one way to ensure that the technology is appropriate is to start from what already exist in the local communities, i.e. promoting local or indigenous knowledge and innovation systems. Archaeological and recent historical research have clearly shown that the African continent has a long tradition of technological innovation in various fields such as forging and working iron, irrigation techniques and other agricultural methods. It is also true that many such developing indigenous technologies were cut down by colonial invasion, but they were not entirely destroyed. Consequently, there are still indigenous skills and crafts among African local communities that could be used as a basis for adapting modern technology (Kjekhus, 1977).

Tshikuku (2001) shows that one of the great assets of African indigenous technology and innovations was that it was always man-centred in essence and therefore it was directly geared to the satisfaction of society basic needs. These indigenous skills were developed in response to the ever growing demands of society and everything that was produced was first consumed or exchanged within the immediate neighbourhood. The indigenous knowledge and skills were handed down from generation to generation through an intricate system of apprenticeship. Therefore, joint regional and continental research to document, audit, revive and promote such indigenous technologies and crafts would be welcomed.

World Bank (2000) provides examples of indigenous irrigation systems in arid areas of North-Eastern Tanzania and South-Western Kenya which could be studied and the knowledge applied to the improvement of agriculture in other arid areas of the region and continent. Plantain cultivation in the Lake Victoria area of Uganda, North-Western Tanzania, Burundi, and Rwanda could provide another domain where joint research studies could provide data on the indigenous methods of cultivation which

could then be used for the development of in other similar areas in the continent. Research could be done on the iron- working techniques of Southern Tanzania and North-Western Zambia, Nigeria, Zimbabwe and South Africa.

These research studies on African indigenous technologies and innovations could help to revive African indigenous knowledge and innovations systems which are in danger of being forgotten. This should include research on indigenous forms of organization and management which are intimately associated with customs and taboos that foster a strong spirit of self-discipline. Furthermore, workers consider their participation in such forms of organization as their small contribution to the welfare of the community as a whole.

The studies might be carried out in joint centres devoted to the management needs of the whole regions and the continent. These studies would considerably strengthen the socio-economic basis of the regions as well as cultural life. Reviving these indigenous skills also means restoring the peoples self-confidence and self-respect for their culture and for the potentials of that culture to adapt to change. This means making the people and their respective communities aware of their own ability to assimilate new aspects and to adapt to changes. In like manner, it is through integrating culture with sustainable development that the continent Africa can build up an indigenous technological and scientific system that can come to terms with the modern technological era. It is also through such self-confidence and respect that culture can be made to play the role of creating and put African countries in the social, economic and technological fields.

3.6 The Issue of Indigenous Languages and African Unity

The observation by Charles (1998) that language is one of the important tools of cultural domination or liberation is handy. Most of the African countries have been since independence looking for alternatives to the language of their former oppressors, in compliance with Africa Cultural Recommendation No. 3 of the former OAU, which suggested that African member states proceed with courage the choice of one or more national languages where they have not been done so. In most of the African countries the official languages of communication are English and French. In spite of the constitution of South Africa recognizing 11 official languages, English and Afrikaans are still dominant. Some African countries have already adopted

certain single languages as official national languages. Tanzania has since independence adopted Kiswahili as the official national language. Kenya and Uganda have also declared Kiswahili as a language of wider communication. Kirundi is also being used on an equal basis with French in Burundi, as is Kinyarwanda in Rwanda. Kilingala is widespread and considered a possible alternative to French in the Democratic Republic of Congo. In Malawi, Cicewa has been recognized as the official tongue (Odhiambo, 1983).

In addition to efforts aimed at finding an alternative to the colonial language, African countries have begun to undertake research on the nature of language and oral traditions. In Uganda, serious research is being done on oral literature and linguistic aspect of the major Ugandan languages at the University of Makerere. In Tanzania there is the Institute Kiswahili Research at the University of Dar es Salaam, as well as the National Kiswahili Council, both of which promote and carry out research on Kiswahili. Tanzania has a Department specializing in the collection of oral traditions. There is also the East African Centre for Research on Oral Traditions and African National Languages in Zanzibar.

In South Africa the PANSLAB (Pan South African Language Board) works jointly with the Lexicographical Units on promoting all official languages, and yet they remain as independent bodies. PANSLAB is currently experiencing administrative and financial problems. For instance, amendments to the PANSALB Act (No 59 of 1995) had been drafted and discussed without the knowledge of the National Council of Provinces; the budget for Afrikaans is considerably high, meaning that this language receives more recognition.

However, Mokakale (2008) calls for the necessity for strengthening these language institutions to make them viable centres for research and cultural information. These centres could use audio – visual materials to promote culture and cultural activities. Films, tape- recorders and radios could be used to collect, preserve and disseminate cultural experiences of individual national cultures and at the same time to bear witness to common African cultural traits.

Furthermore, Henderson (1999) rightfully states that there are many practical ways of promoting the usage of indigenous language for wider communication. The first and probably most effective are to introduce the language into the school system at an early stage as either a medium of instruction or at least as a subject on the curriculum. This exposes the learners to the indigenous language and gives them an incentive to use it. The

Europeans have employed this strategy for many years. It usually requires the individual to learn at least two languages besides his mother tongue. By introducing the different languages into the school system, people would choose one of the most common languages as a language of wider communications.

Another approach to promote the use of an indigenous language for wider communication is to establish culturally oriented publishing houses, such as the defunct East African Literature Bureau which simultaneously specialized in the publication of stories, riddles, proverbs, and so forth from Kenya, Uganda and Tanzania. The publishing house helped these countries not only to spread cultural awareness but also the Kiswahili language in which most publications appeared. The third approach that member states might consider to institute a system of exchange of language experts, similar to that begun at the University of Khartoum, in Sudan, where the Institute of Africa and Asia Studies included Hausa and Kiswahili, in their teaching curriculum.

Teachers were invited from the countries where the languages are spoken. There could also be an exchange basis whereby a lecturer in Kirundi or French would go to South Africa or Nigeria to introduce the language while a South Africa lecturer would go to Burundi to introduce IsiZulu or Setswana. In this way the universities create corps of African language teachers capable of disseminating the different languages. Such experiments were begun in Ghana as early as 1970 and involved sending Ghanaian students to Tanzania to learn Kiswahili. These exchanges would create an excellent way of popularizing major African languages in the various regions of the continent.

These activities should be carried out with the full realization that as Africans expand their socio-economic horizons they are also expanding their interdependence. Kagusa (2000) argues that if such interdependence is not to create artificial superiority complexes in some countries, then there must be a common language of wider communication accepted by all. This does not imply a negligence of the other languages spoken in the various regions of the continent.

The other languages must be studied with equal appreciation. This can be best achieved by ensuring that African institutions of higher learning place less emphasis on foreign languages, and promote studies and discussions on the different languages spoken by the various nationalities within the nation. Such studies, which could take place at universities and

teachers colleges in Africa, should include the design of alphabets and scripts for languages that do not possess them and a linguistic analysis of those that already do. Moreover, there should be a constant exchange of the results of such studies between institutions. These exchanges would be further strengthened by the use of institutes such as the East African Centre for Research on Oral Tradition and African National Languages of Zanzibar, which is supposed to have fourteen East African member countries.

Finally, African countries should work with UNESCO and other international organizations as a unit seeking assistance in undertaking a thorough and critical study of African languages. These studies could serve as a basis for a future choice of one African language for the continent. The obvious advantages of communicating in a single language need no dwelling upon. However, since national and cultural pride might make such a choice difficult, it is advisable to proceed gradually rather than adopt legislative or political approaches that might have the opposite effect of arousing national and ethnic animosity.

Charles (1998) states that other policy strategies for cultural cooperation include joint programmes to train cultural personnel. This is due to the fact that the quantity and diversity of cultural activities within a country requires an equally important number of trained personnel to handle such varied aspects of cultural life. It is, however, more feasible to train interdisciplinary and international personnel in one joint international institution than to have each country attempt to train its own personnel. This applies to all areas of culture; conservation, creation, dissemination, research, and so forth. Such instruction would maximize the resources available to individual countries as well as to create cultural communication links and possibilities for future cultural exchange.

On the role of tourism in cultural integration, Tshikuku (2001) argues that while tourism offers another important means of creating awareness and appreciation of African culture, it also has its dangers. The most well-known type of tourism involves foreign travellers who come to visit natural or historical sites such as the game parks. Tourism has become an industry which, while bringing in foreign currency, often bears little relevance to the cultural development of the African people. It is due to this alienating aspect that the Africa Cultural Recommendation no. 23, called upon African states to enable tourists to appreciate the various manifestations of African cultures while taking care to ensure that socio-cultural are not endangered.

However, the most disappointing issue is the absence of tourism among Africans themselves. The reason for this might be attributed to the cost of hotels at the disposition of tourists and maybe due to the fact that most of the features European and American tourists come to admire in Africa are common features to many Africans. This means that if Africans are to appreciate the cultural qualities of their fellow country men and women, a new type of tourism that would bring people directly into contact with another. This kind of tourism could bring renowned linguists, oral tradition experts, historians, artists and other African specialist into contact with their counterparts and admirers in other African countries. It would enable students, artists, athletes, and women to exchange visits and establish contacts,

World Bank (2000) adds that Africa suffers from a lack of information about itself; this defect can only be overcome through exchange between people who would then become the chief disseminators of the information about the countries they have visited. The interest and awareness thus created would also encourage individual states to preserve and promote their cultural heritage. Recently, countries have begun to come together to form different economic and political organization such as East African Community; Economic Community of West African States (ECOWAS); Common Market for Eastern and Southern Africa (COMESA); Southern African Development Community (SADC); New Partnership for Africa's Development (NEPAD), Kagera Basin Organization, etc.

It would be very promising for future cultural cooperation if the leaders of these organizations placed cultural questions on the agendas of some of their meetings. This is due to the fact that although practically every African head of state has made some sort of statements on the importance of culture for the sound development of his country, and almost all of these leaders see culture as a tool for setting the moral standards of society, they still lack a forum in which to discuss culture related matters. A simple statement or communiqué that would bring the cultural question back into the limelight might herald a new order of priorities.

4. Conclusion

This study has examined and elucidated how cultural cooperation in Africa could be an important tool for sustainable development and unity. It has been underscored that for this to happen cultural issues should be incorporated in

the overall national development planning of respective countries and continental agendas. Moreover, before culture can be integrated into overall national development plans, there must be a clear concept of the kind of development desired and the role culture can play in achieving this goal. Until now, culture has been treated at the best as an appendage of development and at worst as a threat. Culture should be seen as a product of the global efforts of a community or a country, the signs and reflection of the efforts whereby a community or ensures its own survival. Culture thus defined and cultural cooperation as suggested in this chapter becomes a crucial tool for sustainable human and social development.

It is also paramount that African countries should first of all cooperate among themselves at regional and continental levels. This cooperation can only be meaningful to sustainable development if it begins with what is already there in African local communities, that is, the African indigenous knowledge and innovation systems including the philosophies behind them. There is, however, need for a proper analysis and planning of these African cultural potentialities so that they become adaptable to the demands of modern science and technology. The chapter also concludes that although the right to development and to a share in the benefits of the world resources is an inalienable collective human right; the road from colonial oppression to economic emancipation must be by the cultural emancipation.

It should be emphasized that economic development does not exclude cultural development. On the contrary, it is impossible for one to exist without the other. Cultural development is the identity component within the development process. It is in the light of such understanding that the chapter provides policy implication and recommendation that African countries, especially policy makers should provide, for every phase of their national development planning, a statement of cultural dimension within the development plans including the ways and means of implementing such cultural dimensions. This approach to development planning will give all developments efforts in the continent a human face and lead to an improvement in the lives and institutions of the people.

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Knowledge and Perceptions of Educators and Learners on the Incorporation of Indigenous Knowledge into the School Curriculum

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Turning the spotlight to education, this chapter investigates the knowledge and perceptions of educators and learners on the incorporation of IKS in the school curriculum. Involving two high schools in Mafikeng (North-West province, South Africa), it argues for the promotion of IKS for the benefits of future generations. It is necessary to preserve and promote IKS in education because of its potential value for sustainable development. The corresponding development of the school curriculum in this regard is therefore of vital importance. The study found that the respondent educators and learners from Saint Mary's High School and Letsatsing Science High School had positive views on IKS. Even so, it also became clear that they experience difficulties in understanding how IKS could be mainstreamed into all learning areas, particularly the science oriented subjects. Strategies for promoting and preserving indigenous knowledge via sustainable strategies in the formal education system are proposed.

Keywords: knowledge, perceptions, educators, learners, incorporation of IKS, school curriculum

1. Introduction

Yates (2004) says Africa is facing a profound loss of its indigenous knowledge systems (IKS) due to the neglect and marginalization by dominant knowledge systems from outside the continent. The application of

these Western knowledge systems with high disregard for specific African indigenous cultural systems has led to failures in sustainable resource use and the erosion of Africa's biological and cultural heritage (Ntuli, 2001). In the views of Quan-Baffour (2005), the curriculum for African schools is too Euro-centric. It does not reflect the realities of the African socio-cultural and economic realities and aspirations. Most of the things taught in the schools in Africa have little or no value to the sustainable development of the continent and its people.

Nakashima, Prott and Bridgewater (2005) argue that,

sophisticated knowledge of the natural world is not confined to science. Human societies all across the globe have developed rich sets of experiences and explanations relating to the environments they live in. These "other knowledge systems" are today often referred to as traditional ecological knowledge or indigenous or local knowledge. They encompass the sophisticated arrays of information, understandings and interpretations that guide human societies around the globe in their innumerable interactions with the natural milieu: in agriculture and animal husbandry; hunting, fishing and gathering; struggles against disease and injury; naming and explanation of natural phenomena; and strategies to cope with fluctuating environments.

Indigenous knowledge systems (IKS) refer to the complex set of knowledge and technologies existing and developed around specific conditions of communities indigenous to a particular geographic area (Rajasekaran, 1993). It is culture-based and practiced in ways that are effective, efficient and functional in the livelihoods of communities that hold them. Indigenous knowledge is based on the local experiences, skills and innovations of a people and plays an important role in defining the identity of a community.

Describing the wisdom of indigenous people, the former Director General of UNESCO, Frederico Mayor, once said:

The indigenous people of the world possess an immense knowledge of their environments, based on centuries of living close to nature. Living in and from the richness and variety of complex ecosystems, they have an understanding of the properties of plants and animals, the functioning of ecosystems and the techniques for using and

managing them that is particular and often detailed. In rural communities in developing countries, locally occurring species are relied on for many - sometimes all - foods, medicines, fuel, building materials and other products. Equally, people's knowledge and perceptions of the environment, and their relationships with it, are often important elements of cultural identity.

Ogunniyi (2004) points out that there is currently a renaissance of interest in the value of indigenous knowledge systems, after a long period of neglect and disdain by Western scientific and academic establishments. Western strategies to bring about sustainable development in indigenous communities have failed. There is also growing realization among development agencies, researchers and academics that the low-income communities, mostly dominated by women, who are often labelled "poor", may be economically poor, but are rich with respect to many things that are often unseen and unrecognized. This wealth hidden in specialized skills, talents and other tacit knowledge of the community is their indigenous knowledge which has been used for centuries for sustainable community livelihood.

Furthermore, Yaanches (2004) posits that, as African communities seek to redefine themselves, they come to realize that their local knowledge systems can be both sustained and invigorated by involving the formal educational system and by influencing the school curriculum. Since most of this local knowledge is held by elders and other indigenous knowledge practitioners in the communities, the incorporation of IKS into the school curriculum would encourage learners to learn from their parents, grandparents and other adults in the community, and to appreciate and respect the local knowledge. Such a relationship between young and older generations could help to mitigate the generation gap and help develop intergenerational harmony. Inspired by the fact that IKS is not documented, its integration into the school curriculum would enable schools to act as agencies for transferring the culture of African society from one generation to the next (Spady and Schlesbusch, 1999).

Stears (2008) examined the nature of the knowledge produced by children in South African schools, when applying indigenous knowledge approach. The chapter raises a number of questions around the nature of indigenous knowledge, that is, what knowledge constitutes indigenous knowledge? The intention was to design a science module on a topic that learners identified as relevant. The method employed was to ask learners to

write stories on the topic in an effort to determine what indigenous knowledge held with regard to the topic. While the stories contained examples of indigenous knowledge, the majority of experiences learners identified with were not indigenous knowledge in the traditional sense, but knowledge related to their personal circumstances. This raises the question whether poor socio-economic conditions lead to the erosion of indigenous knowledge held by the parents and grandparents of these children or whether the subculture of poverty has produced a new kind of indigenous knowledge?

Curriculum 2005 (DoE, 1995) foregrounds indigenous knowledge systems as one of the themes that should be integrated across the curriculum. There is a move towards designing curricula that consider learners' cultural backgrounds, hence the emphasis on incorporating informal knowledge in the curriculum.

However, in spite of the above, Van der Horst and Mc Donald (1997) argue that the educational institutions in Africa and South Africa in particular have not made fundamental changes to integrate IKS in the educational curriculum. This is in spite of the introduction of the Outcome Based Education (OBE) Curriculum in which valuing IKS is one of its fundamental principles.

Semali and Mehta (2010) emphasize that in the face of intense economic globalization, indigenous know ledges worldwide about human health, survival, and innovation are being threatened with extinction. If we are to create workable strategies for overcoming problems associated with poverty, famine, disease, and the depletion of natural resources, the academic community must re-imagine and develop ways to engage the holders of indigenous knowledge in meaningful, culturally appropriate, and productive relationships in which the knowledge systems of each partner are valued.

This chapter is based on a study which investigated the knowledge and perceptions of educators and learners of St. Mary's High School and Letsatsing Science high school in Mafikeng, North-West Province, towards the incorporation of (IKS) in the school curriculum. The chapter discusses the following aspects: the socio-economic and demographic characteristics of the respondent learners and educators; knowledge and perceptions of the respondents towards the incorporation of IKS in the school curriculum.

Methodology

The study followed a case study approach to investigate the knowledge and perceptions of educators and learners of St. Mary's High School and

Letsatsing Science high school (Mafikeng) towards the incorporation of (IKS) in the school curriculum. Tellis (1997) argues that a case study approach is an ideal methodology in a situation where a holistic, in-depth investigation is needed since it is exploratory and descriptive. A stratified random sample of 25 males and 25 female learners from grades 10, 11 and 12 was collected from the study sites. Another stratified random sample of 25 males and 25 female educators was collected from both schools. This gave a total of 50 learners and 50 educators who participated in this study. Babbie and Mouton (2002:85) explain that in a stratified random sampling procedure, the target population is divided into different sub-groups called strata, so that each element of the population belongs to one and only one stratum. The cross-sectional sample of learners and educators provided the researcher with representative samples from all educational levels of the schools and gender sections.

Qualitative data were collected through interviews with key persons such as the school principals, and the interviews consisted of asking questions that were semi-structured and open, allowing full answers from the respondents.

Patlov (2002) explains that qualitative research aims to gather an in-depth understanding of human behaviour and the reasons that govern such behaviour. The qualitative method investigates the *why* and *how* of decision making, not just *what*, *where*, *when*. Hence, smaller but focused samples are more often needed, rather than large samples. According to him qualitative methods produce information only on the particular cases studied. This is supported by Tellis (1997) who elaborates that qualitative research is used to help researchers understand how people feel and why they feel as they do. It is concerned with collecting in-depth information asking questions such as why do you say that? Samples tend to be smaller compared with quantitative projects that include much larger samples. Depth interviews or group discussions are two common methods used for collecting qualitative information.

Focus group discussions were conducted with randomly selected groups of 6-10 educators and learners from both schools. Yates (2004:71) argues that though the focus group discussion can be seen as a form of group in-depth interview; the difference lies in the fact that it is a group rather than one-to-one interview. Also, by getting the participants to discuss among themselves, it was a fast and easy way of collecting qualitative data in less time than would be needed for individual interviews.

A questionnaire was also distributed to the respondents for quantitative data which would support the qualitative data. According to Maykut and Morehouse (1994:146), by employing different methods of data collection in a single research project, the researcher is to some extent able to compensate for the limitations of each method. Taking into consideration that opinions are confidential issues, the researcher ensured that participants had the right to refuse to participate. Anonymity was also ensured so that participants did not feel insecure. Also respondents were assured that the information collected from them would be kept confidential and only used for the purpose of the research.

Qualitative data, which were collected through interviews and focus group discussions, were later written down from the audiotapes and the responses categorized and analysed through content analysis; and the quantitative data from questionnaires were analyzed through descriptive statistical analysis (Weber, 1990).

Content analysis has been defined as a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding (Berelson, 1992; GAO, 1996; Krippendorff, 1990). Holsti (1999) offers a broad definition of content analysis as, any technique for making inferences by objectively and systematically identifying specified characteristics of messages. Under Holsti's definition, the technique of content analysis is not restricted to the domain of textual analysis, but may be applied to other areas such as coding student drawings (Wheelock, Haney, and Bebell, 2000; Roberts, 1997), or coding of actions observed in videotaped studies (Stigler, Gonzales, Kawanaka, Knoll and Serrano, 1999; Shapiro and Markoff, 1997; Weber, 1990). In order to allow for replication, however, the technique can only be applied to data that are durable in nature (Stemler 2001).

Content analysis enables researchers to sift through large volumes of data with relative ease in a systematic fashion (GAO, 1996; Denzin and Lincoln, 1994; Rosenberg, Schnurr and Oxman, 1990). It can be a useful technique for allowing us to discover and describe the focus of individual, group, institutional, or social attention (Erlandson, Harris, Skipper and Allen, 1993; Weber, 1990). It also allows inferences to be made which can then be corroborated using other methods of data collection. Krippendorff (1990) notes that much content analysis research is motivated by the search for techniques to infer from symbolic data what would be too costly, no longer possible, or too obtrusive by the use of other techniques (Stemler 2001).

The Socio-economic and Demographic Characteristics of the Respondents

In order to describe the characteristics of the respondent learners and educators the respondents were asked through a questionnaire to indicate their age groups, level of education, teaching experience in the case of respondent educators and favourite subjects in the case of respondent learners. The results are discussed in detail below:

The study found that 56% of male respondent learners and 64% of female respondent learners from St Mary's High School were between the ages of 16 and 18; while 70% male respondent learners and 83% female respondent learners from Letsatsing Science High School were also in the 16-18 age groups. For the respondent educators in St Mary's High School, 50% of the males were 56 years old and above and 56% of the females were between 36-40 years old; while among the respondent educators from Letsatsing Science High School, 43% of the males were between 36 and 40 years old, and 55% of the females were in the 25-35 age group. Focus group discussions with the respondents indicated that the attitudes of the respondents towards IKS reflected in their ages.

The study also investigated the level of education of the respondents. It was found that 56% males and 46% female respondent learners from St Mary's High School were Grade 12 learners; while 40% males and 50% female respondent learners from Letsatsing Science High School were Grade 11 learners. The study also found from Saint Mary's High School that 50% of the male respondent educators were holders of Diploma in Education, and 63% of the female respondent educators had Bachelor Degrees in their respective disciplines. From Letsatsing Science High School, 57% of the respondent male educators and 64% of the female respondent educators had Bachelor Degrees. Interviews with the respondents showed that their knowledge and attitudes towards IKS reflected in their level of education.

In terms of the respondent educators' teaching experience in years, the study found that 50% of the male respondents from St Mary's High School had been teaching for 21 years and more; while 63% of the female respondents had been teaching for 6-10 years. From Letsatsing Science High School, 86% of the male respondents had teaching experience between 1-10 years; while 55% of the female respondents had been teaching for less than 5 years. Interviews with the respondent educators showed that their years of teaching gave them a broad knowledge of the school curriculum and how it

had evolved over time, and it also reflected in their attitudes towards the incorporation of IKS into the school curriculum.

The study also found that in St Mary's High School 55% of the respondent female learners indicated that their favourite subject was Arts and Culture; while 66% of the males indicated that their favourite subject was Natural Science. From Letsatsing Science High School 60% of the male respondents and 42% of the female respondent learners indicated that their favourite subject was Mathematics. Focus group discussions with the respondents showed that subject interests of learners reflected their interest in IKS.

The following section looks at the knowledge and attitudes of the respondent learners and educators of both schools towards the incorporation of IKS into the school curriculum.

Knowledge and Perceptions of Respondent Learners and Educators towards the Incorporation of IKS into the School Curriculum

The respondents were asked to indicate what they understood by IKS and their views towards the incorporation of IKS in the school curriculum.

When the respondents were asked to define IKS, the respondent learners (55% from St Mary's High School and 41% from Letsatsing Science High School) indicated that IKS is knowledge about the heritage of a particular community. The respondent educators (83% from St Mary's High School and 50% from Letsatsing) stated that IKS is a system of knowledge that seeks to preserve the culture of people. Also, 5% of the respondent learners and 3% of the respondent educators from Letsatsing Science High School indicated that they had no idea of what IKS was all about. Focus group discussions with the respondent learners and educators revealed that the majority of the respondents had an idea about IKS and their knowledge had a reflection on their attitude towards the incorporation of IKS into the school curriculum.

Furthermore, when the respondents were asked to indicate whether IKS should be incorporated into the school curriculum, all the respondent learners from St Mary's High School and 86% from Letsatsing Science High School responded in the affirmative. From the respondent educators, 94% from St Mary's High School and 83% from Letsatsing Science High School accepted that IKS should be incorporated into the school curriculum. During

the focus group discussions, the respondents gave several reasons for the incorporation of IKS into the school curriculum. Below are some of the reasons:

- Parents do not educate their children about their heritage;
- Learners will know their culture and the importance of traditional practices;
- Local knowledge will be preserved for future generations;
- Learners will know their roots and respect them;
- Learners lack knowledge about traditional practices, which are relevant for livelihood - this knowledge can be brought to them through IKS;
- The importance of language and customs will be taught to the learners through IKS; and
- The cultural diversity of South Africa in particular, and the importance of culture will be opened up for the learners.

However, some of the respondent educators (6% from St Mary's High School and 17% from Letsatsing Science High School) and learners (14% from Letsatsing Science High School) were against the idea of incorporating IKS into the school curriculum. The reasons for this were as follows:

- IKS has no relationship with subjects taught in the classroom;
- IKS is local knowledge and should be taught at home;
- Teaching IKS in the classroom would be a difficult task because IKS is not documented like the other learning areas; and
- The training given to educators did not involve the teaching of IKS; hence it would be difficult for educators to mainstream IKS into classroom work.

Focus group discussions with the respondents showed that despite their knowledge about IKS, not all the respondents agreed with the idea of incorporating IKS into the school curriculum.

In addition, the respondents were also asked to indicate the learning areas in which IKS could be taught if it was incorporated into the school curriculum. Some respondent learners (43% from St Mary's High School and 33% from Letsatsing Science High School) indicated that IKS should be taught as a subject on its own. Also, other respondent learners (36% from St

Mary's High School and 25% from Letsatsing Science High School) indicated that IKS should be infused into Arts and Culture. Some of the respondent educators (90% from Letsatsing and 43% from St Mary's High School) indicated that IKS be taught as a subject on its own; while other respondent educators (10% from Letsatsing and 28% from St Mary's) indicated that IKS be taught in Life Orientation. Focus group discussions with the respondents indicated that they had different attitudes towards the teaching of IKS in school. Below are some of the reasons given by the respondents who indicated that IKS be infused into subjects like Life Orientation or Arts and Culture:

- IKS makes learning easier and more interesting;
- The teaching of IKS comprises the use of outdoor activities, which will require the participation of learners and will make learning a participatory process; and
- IKS provides practical experiments, which make learning of African culture more understandable.

The following reasons were given by the respondents who indicated that IKS be taught as a subject on its own:

- IKS involves the study of culture and heritage of people and this has no relation with subjects such as mathematics and physics;
- Not all subjects require the use of past and local knowledge; and
- Subjects like mathematics, economics, and technology will become confusing and difficult to teach and understand when IKS is included.

Focus group discussions and interviews revealed that the respondents believed that IKS is basically about Arts and the past. They did not understand the relationship between IKS and science. This indicated their lack of knowledge about the relationship between IKS and science subjects like physics, chemistry and mathematics.

Furthermore, when the respondents were asked to indicate some of the impacts IKS would have in the teaching process, none of the respondent learners responded. However, 85% of the respondent educators from Letsatsing and St Mary's High School gave the following responses:

- Teaching and learning will become participatory and interesting;
- Learners will be free to express themselves and share their indigenous knowledge with classmates; and
- IKS will facilitate the teaching of subjects like Life Skills and Arts and Culture.

Focus group discussions with the respondent educators indicated that IKS would be beneficial to both learners and educators, as it would facilitate the classroom teaching and learning processes.

The study also wanted to investigate educators' opinions about the school curriculum. In terms of the content of the school curriculum, the study found that some respondent educators (75% from St Mary's High School and 58% from Letsatsing Science High School) were of the opinion that the school curriculum lacked practical modules and outdoor activities, which enhanced learning. Also, other respondent educators (32% from St Mary's and 25% from Letsatsing) indicated that the school curriculum was not culture-based; rather, most of the modules utilized Western knowledge. Focus group discussions with the respondents revealed that teaching can be facilitated through practical experiments, which the school curriculum did not provide.

The respondent educators also asserted that the school curriculum was also limited in terms of the knowledge and skill base of school graduates. Some of the respondents (52% from St Mary's and 48% from Letsatsing) indicated that school graduates lacked skills necessary for their success; other respondents (48% from St Mary's and 52% from Letsatsing) asserted that school graduates lacked respect for elders and knowledge about their cultural. Focus group discussions with the respondents revealed that the school curriculum did not provide a better future for its graduates in terms of skills and cultural knowledge.

However, the respondent educators confirmed that IKS would augment the status of school curriculum if given the opportunity. In their opinion:

- IKS will act as a vehicle that enables educators to plan together in order to achieve the outcomes expected of the learners;
- IKS will address the holistic nature of the school curriculum; and
- Learners will acquire the necessary skills and knowledge required of them when they graduate from school.

Focus group discussions and interviews with key persons pointed out that the incorporation of IKS into the school curriculum will enable learners and educators to meet their expected outcomes.

When key persons like the school principals were asked to give their opinions about some of the challenges of incorporating IKS into the school curriculum, they had this to say:

- Poor knowledge and lack of interest in IKS;
- IKS is not related to most of the learning areas in school;
- Lack of resources; and
- Absence of teaching materials due to the undocumented nature of IKS.

Interviews with key persons showed that it would be impossible for educators to teach IKS when they themselves did not have interest and knowledge in the subject. Thus, a lot needed to be done before IKS could be incorporated into the school curriculum. Some of the respondents stressed that:

- Workshops should be organized to educate school educators about IKS;
- Educators should undergo training in relation to the teaching of IKS;
- Cultural activities should be organized in schools, so that learners would understand IKS better;
- Indigenous games and sports should be introduced to learners and made compulsory at school; and
- The Department of Education should make teaching materials relating to IKS available so that the teaching of IKS in schools will be realized.

When key persons were asked to give the importance of IKS in education of South Africa, they articulated clearly that Education in South Africa will portray indigenous African knowledge and the heritage of the country; and the Out-Come Based Education would be fully established, with the realization of all expected outcomes.

Conclusion

The study provided a picture of the present status of indigenous knowledge in the formal education and that the need to reclaim and promote this

knowledge system is crucial because of the intrinsic value of knowledge itself. The undocumented nature of IKS and oral method of transition from one generation to another endangers IKS and puts it at risk of possible extinction. It is therefore of absolute importance that IKS be preserved for the benefits of future generations. One way to preserve IKS is by incorporating it into the school curriculum. However, in spite of the positive view about IKS, there was no common view on its incorporation in the formal educational system among the respondents (both learners and educators).

The study found that the majority of the respondents (learners and educators) in both schools did not understand the possibility of mainstreaming IKS into all learning areas, particularly in the sciences. Hence, they emphasized that IKS should be taught either as an individual subject or in subjects like Life Orientation and Arts and Culture, which already makes use of indigenous knowledge in the learning process. On the basis of these findings, the study made the following recommendations:

- School educators are at the centre of any curriculum implementation process and the success or failure of any curriculum framework highly depends on them as practitioners. Thus, educators should be trained through workshops, seminars and assessments, to raise their awareness, knowledge and interests in IKS including their competences as transmitters of the knowledge to learners.
- The lack of interest and knowledge in IKS by some of the respondents will make the realization of the objective to incorporate IKS into the school curriculum an unsatisfactory and difficult task. Therefore, the Department of Education, the National IKS Office and other stakeholders including community knowledge holders should work together find strategies and mechanisms of raising the awareness and interests of learners and educators in IKS, to make its integration in the school curriculum a success.
- Schools should be empowered by appropriate authorities to conduct workshops and seminars that create IKS awareness among learners and educators regarding the importance of incorporation of IKS into the school curriculum. Indigenous knowledge can be found in culture related activities, therefore, indigenous games and cultural activities

should be made compulsory in school, so as to awaken learners' interest and understanding of the sources and importance of IKS.

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African IKS and the Feminization of Poverty and HIV/ Aids among the Barolong of Mafikeng

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This case study argues that the promotion of African indigenous knowledge and innovation systems for poverty alleviation and sustainable community livelihoods tend to overlook and marginalize the gendered nature of Indigenous Knowledge Systems (IKS). Despite their significance in the functioning and survival of households and communities, this contribution of local women is often not acknowledged and recognized. Furthermore, most of the development initiatives, especially poverty alleviation projects, are still largely geared towards men. This is a main factor that contributes to the feminization of poverty and HIV/Aids among the Barolong. Others include culture, women's limited access to education, employment opportunities, credit facilities and their multiple roles in their households and communities at large. The eradication of women's unequal socio-economic status in local communities should be regarded as an important component of the fight against poverty and the HIV/Aids pandemic.

Keywords: Feminization, Indigenous knowledge, poverty, HIV/Aids, Barolong

Introduction

The United Nations Development Fund for Women (UNIFEM) explains in its report on *Progress of the World's Women 2005: Women, Work and*

Poverty that, although globalization has brought new opportunities for highly educated and skilled workers, it has in many cases had the opposite effect on those with less training and education, who typically come from poor backgrounds in the first place. According to the UNIFEM report, increasingly, “rather than informal work becoming formalized as economies grow, work is moving from formal to informal, from regulated to unregulated, and workers lose job security as well as medical and other benefits” (Women and Children in Poverty, n.d.).

What the world is seeing is that growth does not automatically “trickle down” to the poor, mostly women. According to the Report, it in fact widens the gap between rich and poor. Moreover, “as globalization intensifies, the likelihood of obtaining formal employment is decreasing in many places, with “footloose” companies shifting production from one unregulated zone to an even less regulated one elsewhere, employing workers in informal contract or casual work with low earnings and little or no benefits” (Women and Children in Poverty, n.d.).

This situation has become common in developing countries, especially “in Africa, where 50% to 80% of non-agricultural employment is in the informal sector, where women are predominant. More than 60% of women in developing countries perform non-agricultural paid informal labour; the figure rises when informal paid agricultural work is factored in. Additionally, many women perform informal unpaid agricultural work on family or community farms. Average wages are lower for both informal and agricultural workers, male and female, and the risk of falling into or remaining in poverty is higher for those workers as well” (Women and Children in Poverty, n.d.; Afshar and Dennis, 1992).

The World Bank (2003) elaborates that a little over half the world’s population are women, whose roles, responsibilities and potential contribution to the families and communities place them at the centre of locally-manageable, cost-effective and sustainable development. Niamir-Fuller (1994) adds that using their indigenous knowledge and innovation systems these women, mostly in poor rural communities are involved in large numbers in agriculture, food security and traditional medicine. Yet, most development initiatives, especially poverty alleviation projects, are still largely geared towards men, and women remain an overwhelming proportion of the poor. This is due to the fact that information, especially IK-related information, tends to be viewed, perceived and acted upon differently by the different genders.

This is supported by Beall (2006) who argues that most of the studies on the role of African Indigenous Knowledge and innovation systems in poverty alleviation and sustainable community livelihood in Africa tend to overlook and marginalize the gendered nature of Indigenous Knowledge Systems (IKS). It emerges that in most African pastoralist communities women are responsible for the daily care of animals, their reproduction and doctoring (Samanga, 2006). As a result, they have more in-depth knowledge of traditional medicine and pharmaceutical practices than do men. This indigenous knowledge is not recognized in the search for sustainable solutions to diseases affecting livestock and poverty alleviation in these communities.

Indigenous Knowledge refers to the knowledge that grows within a social group or community, incorporating learning from own experience over generations but also knowledge gained from other sources and fully internalized within local ways of thinking and doing. Community or local innovation on the other hand, is the process through which individuals or groups discover or develop new and better ways of managing resources including building on and expanding the boundaries of their IKS (Wava and Knowles, 1998).

The above implies that an understanding of the role of gender and the way it impacts on the intrinsic value of local knowledge systems is critical to the interpretation, dissemination and utilization of indigenous knowledge for poverty alleviation from a gender perspective. As a result of this gender differentiation and specialization, the indigenous knowledge and skills held by women in the community and household often differ from those held by men, affecting patterns of access, use, and control, while resulting in different perceptions and priorities for the innovation and use of IK. It also impacts the way in which IK is disseminated, documented and passed on to future generations.

United Nations Development Programme (UNDP) Report (1997) defines human poverty as more than income poverty. It is the denial of choices and opportunities for living a tolerable life. Allen (1997) adds that an examination of the “feminization of poverty” around the world is approached in terms of three contributing factors that have been underscored in the women-in-development and gender-and-development (WID/GAD) literature: (1) the growth of female-headed households, (2) intra-household inequalities and bias against women and girls, and (3) neo-liberal economic policies, including structural adjustments and the post-socialist market transitions.

The growing visibility of women's poverty, it is argued, is rooted in demographic trends, "cultural" patterns, and political economy.

Intra-household inequalities are found to exacerbate the vulnerability of women and girls; the problem may be most severe in different parts of Africa and South Asia, and may also vary by social class. The chapter argues that the poverty-inducing nature of neo-liberal restructuring has been especially severe on women. Although the claim that the majority of the world's poor are women cannot be substantiated, the disadvantaged position of women is incontestable. If poverty is to be seen as a denial of human rights, it should be recognized that the women among the poor suffer doubly from the denial of their human rights - first on account of gender inequality, second on account of poverty. Therefore, programs to eliminate or alleviate poverty require attention to gender inequality and women's human rights

It is on the basis of the above that Thibos and Mathews (2007) and UNDP Report (2007) and Mpolokeng (1999) bring in the issue of feminization of poverty in African indigenous ethnic communities such as the Barolong of Mafikeng in the North-West province of South Africa. They argue that the feminization of poverty and HIV/Aids in these local communities has a lot to do with gender discrimination, social and cultural restrictions. This has perpetuated women's limited access to education, employment, lack of decision-making powers, insufficient access to sexual and reproductive health and rights; and gender-based violence.

Thibos and Mathews (2007) emphasizes that World leaders must respect and promote the sustainable development and human rights of indigenous peoples in order to eradicate the persistent, widespread poverty and hunger threatening their very survival. Also, the majority of the affected are women and children. Extreme poverty and the scourge of HIV/Aids in indigenous communities affected women most compared to the rest of the population. According to the International Labour Organization (ILO) (2002) "the poverty indicators of indigenous women were generally above the national average. Educational services for indigenous children, especially girls were generally below recommended minimum standards, and programmes were not tailored to those children's needs, leading to extremely high dropout rates" (cf. *Respect for Sustainable Development*, 2005).

However, the Millennium Development Goals (MDGs) failed to take these factors into account in many cases. Beall (2006) adds that very often governments made decisions without consulting indigenous groups beforehand and failed to provide adequate protection of their rights,

livelihoods and culture. The right of indigenous groups to prior consultation and informed consent must be introduced into public policy and be required before making decisions on investment and development projects, as well as enacting legislation that would directly affect indigenous people. From Wava and Knowles (1998) it emerges that tribal women experienced the same disadvantages as their male peers, but often encountered additional barriers due to age and gender. The “widening of ethnic inequalities in countries where indigenous and tribal people lived had demonstrated that conventional anti-poverty policies had failed to tackle their socio-economic exclusion” (cf. *Respect for Sustainable Development*, 2005).

Wolfgang (2000) notes that, the continued discrimination that African women in traditional communities face in matters relating to poverty and HIV/Aids has been identified as one of the most critical factors in the perpetuation of gender inequality in Africa.

Salim (2004) defines the feminization of poverty as a change in the levels of poverty biased against women or female headed households. More specifically, it is an increase in the difference in the levels of poverty among women and men. Wolfgang (2000) looks at poverty as a deprivation of resources, capabilities or freedoms which are commonly called the dimensions or spaces of poverty. The International Labour Organization of the United Nations (ILO) (2002) shows that the term “feminization of poverty,” refers to the concentration of poverty among women, particularly female-headed households.

Thus, the phenomenon of feminized poverty impacts on escalation of HIV/Aids among women and extends beyond the economic domains of income and material needs to the core of individual and household life. In addition, the feminization of poverty affects more than just women because some of the most striking evidence for the prevalence of a feminized poverty and HIV/Aids is the rate of poverty among children, who disproportionately reside in traditional communities with female-headed households.

In his discussion of the feminization of HIV/Aids in most African traditional cultures Mpolokeng (1999) argues that while biology plays a significant role in the high rates of HIV transmission (females are twice as likely as males to be infected during unprotected sex), man-made socio-cultural and political factors are adding plenty of fuel to the fire. Patriarchal culture in most of the Southern African region has heavily influenced the legal systems, governance structures and value systems that uphold the unequal status of girls and women.

Kalusa (2004) elaborates that a number of commonly observed traditional practices are now recognized as being directly responsible for the spread of HIV/Aids. Widow inheritance, widow “cleansing”, wife sharing, wife exchanging with land or cattle, and polygamy are some of the key ones, which are stacked against women's health because the parties involved do not test for HIV. Circumcision traditional practices are still practiced in various tribal cultures, using the same knives or blades. Aside from these traditional practices are the social norms which dictate that females defer to males. Male youth have been cultured to believe it is a sign of manhood to be able to control relationships. Females are brought up to believe that males are superior in all spheres of life and should be the masters of sexual relationships.

The rigid implementation of traditional practices such as dowry payments makes women men's property. The United Nations Development Programme (UNDP) (2007) indicates that on the issue of sexual subservience and HIV transmission while in most African cultures men are encouraged to be promiscuous, including within marriage, women are often expected to remain “pure”. Furthermore, low levels of education among girls and women, due to being pulled out of school early to perform household duties or care for sick relatives, mean they cannot access HIV information. Young women are kept ignorant about sex because it is viewed as a sign of innocence. This in turn makes them totally unprepared for sexual relations, and equally unable to negotiate for safe sex. From Meekers and Calves (1997) one notes that in most African traditional communities women are at risk because of a lack of power to determine when, where and whether sex takes place. Moreover, there is growing evidence that a large number of new cases of HIV/Aids infection is due to violence in homes, schools, the workplace and other social centres, such as churches or while collecting water.

The Barolong people belong to one of the Batswana ethnic groups found in the North-West province of South Africa. Like in other Batswana ethnic groups such as the Baphalane, Baphiri, Bakgatla, Batlhaping, Bakubung, Batlokwa, Bahurutshe, and Batlhako, the Barolong women are marred by cultural values that recognize the rights of men rather than those of women, especially in access and ownership of production resources such as land. As early as the primary socialization in the family, a boy child among the Barolong is recognized as an heir, but not a girl child.

It is on the basis of this observation that the chapter argues further that poverty and HIV/Aids among the Barolong people has a “female face”. The Barolong women bear an unequal burden in coping with the problems of poverty and HIV/Aids at both community and household levels.

This chapter is based on the argument that tradition, colonialism and apartheid systems in South Africa accorded African women, especially in traditional societies, a social status which is inferior to that of men. An example of this situation is reflected in the socio-economic conditions of the Barolong in the North-West province. The general objective of this chapter is to examine the indigenous knowledge of the Barolong in Mafikeng and feminization of poverty and HIV/Aids.

Methodology

This study followed a participatory and case study approach and concentrated on the Barolong of Mafikeng in the North-West province because the researchers are based at the North-West University (Mafikeng Campus). Tellis (1997) defines a case study as a detailed analysis of a person or group, especially as a model of social phenomena. He elaborates further that it is a form of qualitative descriptive research that is used to look at individuals, a small group of participants, or a group as a whole. Researchers collect data about participants using participant and direct observations, interviews, protocols, tests, examinations of records, and collections of writing samples.

The participatory approach to the study was guided by the fact that, the Barolong customs and other cultural practices are not codified. They are derived from oral traditions transmitted from one generation to another and from observation of community practices. Hence, the use of both qualitative and quantitative research methods was deemed appropriate for this research due to the complex nature of the research problem. The local knowledge holders had to be involved in all stages of the research process.

Bessette (2000) defines participatory research as a research method in which the researcher works with the group under investigation; that is to say that she or he takes a lead from the group on what is to be studied, where,

when, and how. The researcher shares useful research skills with the group, which is then enabled to undertake further research autonomously.

The study was also predominantly qualitative. Shank (2002) defines qualitative research as a form of systematic empirical inquiry into meaning. By *systematic* he means “planned, ordered and public”, following rules agreed upon by members of the qualitative research community. By *empirical*, he means that this type of inquiry is grounded in the world of experience. *Inquiry into meaning* says researchers try to understand how others make sense of their experience. Denzin and Lincoln (2000) claim that qualitative research involves an *interpretive and naturalistic* approach: This means that qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them.

According to Huberman and Miles (2002) the advantages of doing qualitative research on leadership include: flexibility to follow unexpected ideas during research and explore processes effectively; sensitivity to contextual factors; ability to study symbolic dimensions and social meaning; increased opportunities to develop empirically supported new ideas and theories; for in-depth and longitudinal explorations of leadership phenomena; and of course more relevance and interest for practitioners.

In this study qualitative research methods such as key informant interviews, focus group discussions and participant observations formed the core of the data collection methods; while a questionnaire was administered to the research sample of 25 men and 30 women of the Barolong community in an effort to collect supportive quantitative data. Qualitative methods are frequently used in conjunction with quantitative methods to give an overall representation of behaviour within a particular population. After data from both methods were collected, the results were triangulated for a comprehensive understanding of the research problem.

Key informants such as community elders, both men and women, were interviewed at all levels of the research project as a means to gain in-depth qualitative information. This approach is a traditional method used by social scientists including anthropologists for extracting cultural knowledge through well-placed individuals in the society. It is also used in situations where access to official records or data is weak or non-existent. Where official records exist, it is used as a means to gain further insight by questioning key people about their modes of life or specific social problems.

Focus group discussions were conducted with randomly selected groups of 6-10 community members. A focus group discussion is a semi-structured interview in which the discussant knows in advance the topics to be covered. The people included were known to have been involved in specific experiences related to the research problem. Focus groups discussions are different from other types of group interviews in that they focus on a particular topic and they rely on group dynamics in order to generate data. The interaction is mainly between group members themselves and not between the members of the group and the interviewer. Group interaction is used in this type of research to generate data and as a source of data analysis. The assumption is that there is an interaction that is productive in widening the range of responses, in activating forgotten details of cultural experience/knowledge and in releasing inhibitions that are part and parcel of interviews with individuals.

In his discussion of data analysis, Ader (2008) describes analysis of data as a process of inspecting, cleaning, transforming, and modelling data with the goal of highlighting useful information, suggesting conclusions, and supporting decision making. Data analysis has multiple facets and approaches, encompassing diverse techniques under a variety of names, in different business, science, and social science domains. In this research study qualitative data in the form of audio taped interviews were transcribed and translated from Setswana into English. Interview and participant observation notes were typed and a content analysis conducted. Whenever possible the site research assistant was also the person who transcribed and translated audio tapes for the site to ensure data accuracy.

Quantitative data from the questionnaires were checked and coded. Data were analysed using SPSS/PC+. Validation checks were conducted through all phases of the research to ensure the highest level of data accuracy. Information which was unclear or missing was clarified or collected by returning to informants and reviewing issues and concepts (Tabachnik and Fidell, 2007). The following sections discuss the research findings.

Results and Discussion

The respondent community members were asked through a questionnaire and face - to - face interviews to indicate from their community perspective the following aspects: the different types of indigenous foodstuffs and their

methods and techniques of processing and preservation after harvest; knowledge of indigenous plants for both food and medicinal purposes; employment status; monthly income and its uses; factors contributing to poverty and HIV infection in the community among men and women.

1. The Status of Indigenous Knowledge Among the Barolong Women

The study revealed that the majority of the Barolong women (67%) in the Mafikeng are who were in the age group of 45 years and above, had wide knowledge of local aspects such as different types of indigenous foodstuffs and their processing; knowledge of postharvest technologies of food crops such as sorghum, vegetables, fruits, etc. to reduce losses; knowledge of indigenous plants for both food and medicinal purposes including the common diseases affecting them and their remedies; knowledge of women and children diseases and the appropriate remedies; knowledge of local songs, proverbs, folklores, indigenous games; the rearing of different types of indigenous livestock including livestock diseases; knowledge of natural disasters such as drought, famine, floods, etc. and the early warning symptoms of these disasters through the behavior of animals, birds, insects, wind direction and star movements, etc.

This diverse indigenous knowledge was learned from parents and other elderly community members and they then taught their daughters. Interviews and focus group discussions showed that women were the community members most actively involved in activities related to the above aspects. It was this local knowledge which contributed to the survival of the community as a whole in terms of food security, health, natural resource management, etc. The following section shows that in spite of this rich indigenous knowledge they possessed and their great contribution to the survival of the community, the Barolong women in the area had the lowest income.

2. Feminization of Poverty among the Barolong

The Mafikeng Local Municipality Report (2005) indicates that women constituted about 54% of the Barolong population in the Mafikeng area. However, the Report also indicates that economically, most of the active women in the Barolong community were concentrated in low-productivity agricultural and service activities. The questionnaire study showed that with regard to average monthly income, the women earned less than R500.00

while men earned between R500.00-R1000.00. Most of the women's household income was allocated to household needs. The study revealed that during times of famine, women suffered more than men because most men migrated to urban and other areas in search of wage labour leaving women behind to take care of the children, the sick and the elderly.

Interviews and focus group discussions revealed the following as contributing factors to the feminization of poverty and HIV among the Barolong in the study community:

(i) Cultural Factors

The study found that the Barolong women's socio-economic and cultural disadvantaged position in the community contributed to their low self-esteem, lack of confidence and motivation. For instance, interviews with both the respondent Barolong men and women indicated that there was a cultural belief among them that women were not equal to men. They were considered inferior to men and hence were treated as minors.

Among the Barolong in Mafikeng, any woman who appeared assertive in terms of portraying that she was more knowledgeable than men, especially in issues of agriculture and sexuality, was considered not culturally normal. It was this perception in the community among both men and women towards women which contributed to the marginalization of the valuable indigenous knowledge for poverty alleviation and health issues which women possessed.

Furthermore, a woman did not have any say over her own reproductive health because she is culturally not free to use contraceptives and her choices on how many children to have are greatly curtailed. This also resulted in the increase in the number of children born with HIV/Aids infection.

In the search for sustainable solutions for poverty alleviation and HIV/Aids in the community, the indigenous knowledge which women had was not considered by most development agencies. This was reinforced by the fact that men had control over productive resources such as land through the institution of marriage. This subordinated wives to their husbands and through inheritance customs made males the principal beneficiaries of family property.

Interviews with women respondents showed that the institution of paying bride price to the relatives of the woman worsened the position of women among the Barolong. The bride had practically little said on the negotiations and as a result of this, financially desperate parents gave their daughters into abusive marriages. Traditionally, among the Barolong, the

groom's family presented cattle and gifts to the bride's family in exchange for the rights over her labour and reproductive capacity. Marital power provided spouses with the right to administer the joint estate; including all property a woman may have acquired prior to marriage. It also gave the husband the right to represent his wife in all civil matters. The payment of bride price to her parents contributed greatly to the situation whereby a woman was forced to endure an abusive marriage since parents had benefited in the form of cattle or gifts

Interviews with both men and women respondents on the subordination of wives and women in general was also evident among Barolong women not being assertive to determine the use of condoms during sexual intercourse. Though men may be aware of their promiscuity due to labour migration, Barolong women were not allowed by tradition to suggest the use of condoms. This predisposed them to HIV infection. It was reported that, a woman who suggested the use of condoms to a husband or male partner was regarded as a prostitute.

(ii) Limited Access to Education

The Mafikeng Local Municipality Report (2005) shows that, 62% of the illiterate Barolong community members were women, especially among the female-headed households. This limited these women's access to employment opportunities. Those who were employed were confined to low-paying jobs such as domestic workers, hawkers, farm workers, etc.

The study found that sixty three percent (63%) of the respondent Barolong female-heads of households were unemployed because of low educational levels. Most of them had primary education or no formal education at all. They argued that education would have provided them with increased access to job opportunities in the labour market and more information on issues such as HIV/Aids.

(iii) Limited Employment Opportunities

The study found that socialization made most Barolong women to believe that higher education and higher paying jobs were only meant for men. According to them job allocation according to gender was socially and culturally appropriate. They argued that women should do less complicated jobs such as domestic work, sewing, hawking, caring for children and growing of vegetables because they are physically weaker than men and less educated.

However, the majority (92%) of the respondent Barolong female high school graduates complained that in practice government policies tended to provide more training and employment opportunities for men than for women. It was suggested that government at all levels must open more opportunities for women, especially female graduates and female heads of households. This was due to the belief that women with sufficient education/training skills and disposable income were likely to make better personal choices for themselves and their dependents (Niamir-Fuller, 1994)

Secondly, the study found that the majority (74%) of the respondent female heads of households earned their income in the informal sector as domestic workers, vendors, etc. Focus group discussions with respondent women explained that the predominance of female-headed households among the Barolong community occurred when men died; deserted or divorced their wives; or migrated out of the community to look for jobs in distant places leaving the responsibility of the wellbeing of the household entirely to the women.

(iv) Limited Access to Credit

The Barolong women experienced more difficulties than men in obtaining the necessary credit to undertake production and business activities. Illiteracy and household responsibilities prevented women from knowing which credit facilities were available for them. This situation was compounded by collateral requirements of banks, which explained why women in the informal sector were compelled to resort to informal credit arrangements.

Community development workers in the study community reiterated that access to credit played an important role in the mobilization of productive resources because it could be used by poor female heads of household as a means of raising productivity and starting business. In rural communities, such as the study community, credit for cash crop investment such as the purchase of agricultural inputs was needed to generate household income. Women's limited property rights restricted their access to credit facilities.

(v) Women's Multiple Roles

Among the Barolong poverty affected women more than men because of their multiple roles at both household and community levels. At home they were responsible for household chores that included child bearing and care, cooking, collecting firewood, fetching water, grinding, sowing, weeding and

harvesting. Outside the home Barolong women worked in agricultural and informal urban sectors where labour was hard and they experienced long working hours and low wages.

3. The Feminization of HIV/Aids among the Barolong

The North-West Provincial Department of Social Development Report (2006) shows that in 2004 there were 930 recorded cases of HIV infections in the Barolong community around Mafikeng. Seventy two per cent of them were women. The Report reveals that in 2005 more than 65% of the recorded cases of people who died of Aids in the community were women, especially young women between the ages of 15-36 years. This implies that the HIV/Aids pandemic in the study community did not impact women and men in the same manner.

The study identified a number of social, economic and cultural factors that put the lives of women in the study community, especially young Barolong women, at higher risk of HIV infection than their male counterpart. These factors included: women's economic dependence on men which led to their lack of power in gender relationships; the marriage of young girls to older men; and sex between girls and older men. The study also found that the myth that HIV/Aids could be cured if a man had sex with a virgin was common in the community and perpetuated the suffering of women, especially young girls. It was also observed that women's lack of reproduction rights posed a problem because childbearing increased the death rate of women, especially those who were HIV positive. They lacked control over pregnancy and became very weak after child birth due to lack of sufficient nutrition.

It was also shown that a married woman might be monogamous but still be infected with HIV due to her husband's risk behaviour. Women had no control over their husbands' multi-partner relationships. Women in the study community had no power to negotiate with their male sexual partners over the use of condoms. They were expected to be submissive and to respond passively to their husbands' sexual demands. There was a great emphasis from women for sex education and HIV/Aids in the community, for both men and women, especially with regard to change of risk behaviours. This was due to the fact that sex education empowers women and encourages them to feel more confident to express their own needs and to negotiate safe sex with their partners.

However, the study also indicated that poverty forced women into submissive situations in which they were vulnerable to sexual exploitation and hence HIV infection. For instance, sex work (paid in cash or kind) was common among women of all age groups and marital statuses in the community. It was one survival or coping mechanisms engaged by women in their poverty situation. Lack of proper skills and employment opportunities among school leavers resulted in girls resorting to commercial sex.

Conclusion

The chapter revealed that using their indigenous knowledge Barolong women were involved in various local community activities which ensured the survival of the families and community at large. Yet, these women were the most affected by poverty and HIV/Aids. Moreover, a number of factors in the chapter were discussed with regard to the feminization of poverty and HIV/Aids among the Barolong in Mafikeng. These factors included culture, women's limited access to education, employment opportunities, credit facilities and their multiple –roles in their households and community at large. It is, therefore, recommended that the indigenous knowledge which Barolong women possess should be taken seriously in the search for sustainable solutions to poverty alleviation and mitigation against HIV/Aids; the eradication of the women's unequal socio-economic status should be regarded as an important component of the fight against poverty and the HIV/Aids pandemic. This implies that improving the rights of women and access to production resources, political influence, and education and employment opportunities is an absolute key to addressing the feminization of poverty and HIV/Aids.

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The Role of the Traditional Council in Land Dispute Adjudication in the North-West Province of Cameroon



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This case study examines the role of the traditional council in land disputes in the Big Babanki village in the North-West province of Cameroon. As in most African local communities, traditional processes and structures are still used to resolve land and other disputes. These structures are popular among the local people because they are considered affordable, accessible, speedy and appropriate to the cultural values of the people, also because the local languages are being used in proceedings. The study found that all stakeholders in disputes are directly involved in the processes and understood the cultural practices and approaches used. Even so, these traditional structures of justice and conflict resolution are characterized by gender and age group discriminations. They also have limited capacity for dealing with complex conflicts characteristic of modern times. Yet, in spite of formal efforts to recognize their existence, in practice they continue to operate independent of the state legal systems. They are also characterized by corruption and abuse of power by rich and influential members of the community. Some recommendations are made.

Keywords: Traditional council, land dispute adjudication, Big Babanki Village, North-West province (Cameroon)

Introduction

Lowental (1996) African countries are characterized by fragmentation of various aspects of their political economy, including the institutions of

governance. Large proportions of the rural populations, who form the overwhelming majority in most African countries, continue to adhere principally to traditional institutions in the governance of their various aspects of their lives.

According to Kofele-Kale (1990) Cameroon like most other countries in West Africa has a dual system of governance. The first is “the modern state system with its institutions which emulates western institutions of governance, which are sometimes at odds with traditional African cultural values. The second is the tradition system that dates back to pre-colonial times”. The evolution of the modern system is “traceable to colonial rule that started in the early nineteenth century through gradual and subtle methods of encroachment on the sovereignty that was vested in the indigenous people led by their local rulers. Among the methods used were the gradual introduction of principles of colonial rule (both French and British) in deciding cases and the introduction of tax systems aimed at raising revenue to cover the cost of administration. As the new system evolved it did not obliterate the earlier indigenous systems by which the people had governed themselves” (cf. Donkoh n.d.; Nkwi and Warnier, 1992).

However, “colonial rule halted the evolutionary processes of the traditional administrative structures and undermined the basis of traditional rule that was rooted in moral authority and consultation by making organized physical force the primary locus of authority”. On another level, “colonial rule gave traditional rulers, sometimes referred to as natural rulers, a new basis for their existence. The traditional governance system, on the other hand, is the age-old method by which the indigenous people administered their affairs prior to and after the advent of Europeans into the region of modern Cameroon. Traditional governance systems varied considerably among the different peoples that occupied the region of modern Cameroon. While some groups developed very complex hierarchical structures, others had simple kin-based types. The implication of the evolution of the modern state system is that such novel institutions as representative bodies at the national level had been introduced to seek out and to protect the interests of the people. The Cameroonian Constitution recognizes and protects the office of traditional rulers, thus creating a parallel system of governance. In fact, the Constitution forbids the Parliament from making laws that interfere with the institution” (cf. Donkoh n.d.; Chem-Lnaghee, 1989).

Nkwi (1999) and Miller (1998) show that the office of the traditional ruler has evolved right from the inception of the establishment of polities within the region of modern Cameroon. “As a collective, it is also referred to as the chieftaincy institution. Indeed, in Cameroon like in most other African countries, the institution dates back several centuries and remains the prime custodian of Cameroonian culture. The institution is much revered and held in awe while at the same time it is perceived to be the embodiment of the spirit of the ancestors and a link between them and the living community. Additionally, it provides a renewed sense of belonging as well as being a powerful agent of social cohesion and harmony” (cf. Donkoh n.d.; Ray, 1997).

The Office has been transformed as it has passed through various phases back to the pre-colonial era through the colonial period to the present. “During the colonial period, traditional rulers had considerable influence and exercised considerable sovereignty within their areas of jurisdiction as their authority in both spiritual and secular matters was almost absolute. During the colonial period, they became virtual subagents of the colonial government in the areas of local government and judicial settlements. In this period, various legislations and statutes enacted by the colonial authority prescribed the traditional ruler’s political role. In the early phase of the post-colonial era, the role that traditional rulers played in local government under the colonial dispensation was terminated in the interest of democracy” (cf. Donkoh n.d.; Van Rouveroy, 1996; Geshiere, 1993).

On the role of traditional rulers in community development, Ngoh, (1997) shows that the role of traditional rulers in Cameroon has been undergoing change as the democratic dispensation within the country develops. It has therefore been necessary that they redefine their role as heads of their polities within the framework of developmental efforts by the central government and its adjuncts as well as non-government organizations (NGOS). “Traditional leaders in Cameroon remain, for a variety of reasons, important to the design and implementation of development projects within their areas of jurisdiction. As a group, traditional leaders were granted statutory jurisdiction by the post-colonial state. Therefore, multi-sectoral development strategies usually need to include traditional leadership as one of the key sectors in order to increase the likelihood of success” (cf. Donkoh n.d.).

Indeed, today, “traditional rulers perceive their role as being primarily initiators of development or catalysts of development processes. They are keenly aware of the fact that their functions have been transformed from serving in merely political, military and ritual capacity that derives from their traditional role as moral and social leaders. Their core functions include mobilization of their communities for development purposes. This includes the provision of infrastructure for enhanced standard of living within the community. Sometimes, traditional rulers initiate development projects and secure the support of both internal and external development agents for the execution of these projects. Besides, they are expected to ensure that peace and stability which are essential conditions for development through adjudication of cases, distribution and sale of land and the management of communal resources such as land, water bodies and forest resources” (cf. Donkoh n.d.; Anaya and Williams, Jr., 2001).

Keulder (1998) argues that in spite of the fact that the introduction of Western legal systems and formal courts during colonial rule in Africa, including Cameroon, tried to undermine African indigenous mechanisms and traditional institutions of justice embedded in customary practices, most African communities continued to resolve their disputes using traditional and informal justice systems. Colonialism and even post-independence leaders in Africa including development agencies regarded them as obstacles to development. It was argued that as African communities became more modern these systems will eventually die out because they are unable to withstand the forces of globalization including western media and western education (Fokwang, 2005).

For instance, prior to independence, jurisdiction over Cameroon was shared between the United Kingdom and France under a League of Nations mandate issued in 1919. The northern part of the British area became part of Nigeria while the Christian southern part joined with the French area. As a consequence, the country inherited a dual legal system including parts of the Code Napoleon and the common law. However, on 12 July 2005 the National Assembly (*Assemblée Nationale*) approved a law to harmonize the country’s penal code. In addition, traditional courts still play a significant role in domestic, property and probate. The court system honours tribal laws and customs when these do not conflict with national laws (Awasom, 2006).

Santos (2006) shows that during the British colonial era, the British applied a dual system of law in their colonies and protectorates. Under

“direct rule” system the civil law was administered and under “indirect rule”, law and order was maintained through customary laws. The chiefs were made the custodians of legislative power. Therefore, common law systems recognized unwritten rules and norms as part of the law. Customary law deals with cultural values and norms as opposed to civil law that is codified (Kane, Onyango and Tejan-Cole, 2005). English common law came to Cameroon in 1919 after the defeat of the Germans during the First World War, when the Southern Cameroons became a League of Nations Trustee territory under British rule. “Even though common law and statutory law are generally recognized as the main body of law in Cameroon, the majority of people, immersed in indigenous culture, still hold to traditional, local customs and norms for the adjudication of their disputes” (Alden, 2005). Traditional councils are still used in rural African countries like Cameroon to resolve land dispute (Aletum-Tabuwe, 1993).

The chapter is based on a study which investigated the role of the traditional council in land dispute adjudication in Big Babanki village in the North-West province of Cameroon. The following aspects are discussed: the role of the traditional council in land issues in the community; what they considered to be the strengths and limitations of the traditional council in land disputes adjudication; the challenges and prospects of integrating customary and modern law in land dispute adjudication.

Methodology

The study in which this chapter is based followed a case study and participatory research approach in order to have a comprehensive and in-depth understanding of the research problem.

Stake (1995) explains that a case study research excels at bringing us to an understanding of a complex issue or object and can extend experience or add strength to what is already known through previous research. Case studies emphasize detailed contextual analysis of a limited number of events or conditions and their relationships. Researchers have used the case study research method for many years across a variety of disciplines. Social scientists, in particular, have made wide use of this qualitative research method to examine contemporary real-life situations and provide the basis for the application of ideas and extension of methods. Yin (1994) defines the case study research method as an empirical inquiry that investigates a

contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used.

Wallerstein and Duran (2003) indicate that in community-based participatory research (CBPR) process the research is conducted as an equal partnership between traditionally trained “experts” and members of a community. The community under study participates fully in all aspects of the research process. CBPR encourages collaboration of “formally trained research” partners from any area of expertise, provided that the researcher provide expertise that is seen as useful to the investigation by the community, and be fully committed to a partnership of equals and producing outcomes usable to the community.

Equitable partnerships require sharing power, resources, credit, result and knowledge as well as, a reciprocal appreciation of each partner’s knowledge and skills at each stage of the project, including problem definition/issue selection, research design, conducting research, interpreting the results, and determining how the results should be used for action. CBPR differs from traditional research in many ways. One of the principal ways in which it is different is that instead of creating knowledge for the advancement of a field or for knowledge’s sake, CBPR is an iterative process, incorporating research, reflection, and action in a cyclical process.

Data collection in this study consisted of both primary and secondary sources. Jones (1996) differentiates primary from secondary sources in the following ways: a primary source is a document or physical object which was written or created during the time under study. These sources were present during an experience or time period and offer an inside view of a particular event. Some types of primary sources include original documents such as diaries, speeches, manuscripts, letters, interviews, news film footage, autobiographies, and official records. A secondary source interprets and analyses primary sources. These sources are one or more steps removed from the event. Secondary sources may have pictures, quotes or graphics of primary sources in them. Some types of secondary sources include publications such as textbooks, magazine articles, histories, criticisms, commentaries and encyclopaedias etc.

This study involved the examination of secondary sources, interviews with key persons, focus group discussions and a questionnaire formed the core of data collection methods. Documented sources from various

institutions related to the research problem provided readily available information. These sources included past research reports, published books, journal articles and internet publications.

Interviews were conducted with key- persons in the village community such as community elders, headmen, etc. Conducting interviews is a traditional method used by social scientists for extracting information through well-placed individuals in the society and institutions. It is part of the ethnographic approach, often used in situations where access to official records or data is weak or non-existent. Where official records exist, it is used as a means to gain further insight by questioning key people about specific social, political and economic problems. Social scientists also use this approach within the field of social interactionist or ethno-methodological research. Key informant interviews consist of asking questions that are mainly semi-structured or open, allowing detailed, full answers from respondents. This approach contrasts with quantitative questionnaires, which allow only controlled and structured responses within narrow parameters (Burgess, 2003).

Focus group discussions were also conducted with randomly selected groups of 6-10 community members. A focus group discussion is a semi-structured interview in which the discussant knows in advance the topics to be covered. Spoull (1995) elaborates that in a focus group discussion people from similar backgrounds or experiences (e.g. mothers, young married men, birch attendants/mid-wives) are brought together to discuss a specific topic of interest to the investigator(s). Homogeneous samples are preferred because mixing age/ gender groups may inhibit some people, especially women, from expressing their views. The purpose of a focus group discussion is to: explore the range of opinions/views on a topic of interest; to collect a wide variety of local terms and expressions used to describe a phenomenon; explore meanings of survey findings that cannot be explained statistically.

The people to be included in this focus group discussion were known to have been involved in a particular situation/experience related to the research problem. Focus group discussions are different from other types of group interview in that, they focus on a particular topic and they rely on group dynamics in order to generate data. The interaction is mainly between group members themselves and not between the members of the group and the interviewer.

A questionnaire was administered to a stratified random sample of 60 community members (30 males and 30 females) in order to give each gender section of the community an opportunity to participate in the study. Berg (1995) defines stratified random sampling as a sampling procedure that involves the division of a population into smaller groups known as strata. In stratified random sampling, the strata are formed based on members' shared attributes or characteristics. A random sample from each stratum is taken in a number proportional to the stratum's size when compared to the population. These subsets of the strata are then pooled to form a random sample. The main advantage with stratified sampling is how it captures key population characteristics in the sample. Similar to a weighted average, this method of sampling produces characteristics in the sample that are proportional to the overall population.

The data collected was both qualitative and quantitative. Qualitative data in the form of audio taped interviews were transcribed and translated from the local language into English. Interview and participant observation notes were typed and a content analysis conducted.

Jones (1996) explains that in content analysis researchers/evaluators classify key ideas in a written communication, such as a report, article, or film. Evaluators can do content analysis of video, film, and other forms of recorded information, but in this chapter, we focus on analysing words. Content analysis could therefore be defined as a systematic, research method for analysing textual information in a standardized way that allows evaluators to make inferences about that information. Another expression of this is as follows: "A central idea in content analysis is that the many words of the text are classified into much fewer content categories" (Yin, 1994).

Presentation and Discussion of the Research Results

The respondent community members were requested through a questionnaire, face to face interviews and focus group discussions to indicate from their own knowledge and views on the following: the role of the traditional council in land issues in the community; what they considered to be the strengths and limitations of the traditional council in land disputes adjudication; the challenges and prospects of integrating customary and modern law in land dispute adjudication.

The Role of Traditional Council in Land Dispute Adjudication

The traditional council in the study community was governed by traditional values, i.e. those beliefs, moral codes and mores that have been passed down from generation to generation within the cultural and social context of the community. The traditional council was composed of about 10 notable community elders including local chiefs and headmen, who were conversant with the history, traditions, customs and culture of the community as a whole. In the past and present time, traditional councillors in the study community functioned as mediators, facilitators and arbitrators in land dispute cases over farmland, residential land, and trespass of cattle and destruction of farmers' crops. The following sections discuss these roles in detail.

Mediators

According to interviews with key persons and information from focus group discussions, in the mediation process, land lords, witnesses, neighbours and family members who were versed with the history of the land distribution in the community were invited to testify on disputed land issues. They also contacted those people with whom the litigants shared the boundary in all sides of the disputed land. They assisted in tracing the fig trees demarcation planted by land owners. The council gathered evidence and went to see the disputed land before taking a decision.

The first function of the ordinary witness was to give evidence in respect of what the witness knew about the disputed land. However, where there was no land demarcation and when two parties were not satisfied the government administration was brought in to assist. The persons who were not satisfied with the decision of the traditional council appealed to the Divisional Officer who convened a land commission to inspect the disputed land. The commission was made up of a representative from the Department of Agriculture and Land Survey, and two notables from the community. In case both parties still did not compromise, the case was then forwarded to the court of law.

Facilitators

Nonetheless, traditional councillors acted as facilitators as they were

assigned by the government administrators to carry out investigations on a disputed land issue and provide a report because the later were a foreign body which knew little about the traditions of the community. Interview with key persons indicated that once the Land Commission had taken a decision in a land dispute, the law court could not interfere. However, one of the parties could appeal to the Senior Divisional Officer who could ask the land commission to review particular aspects of the case. He upheld the decision of the Commission by issuing a Prefectoral Decision.

Interview with key persons in the community also showed that conflict from the local community perspective was viewed beyond the individual. It had a social and community context. The historical and cultural background of the conflict in the case had to be taken into consideration. The history of preceding events, the conflict itself, process of resolving it, possible implications for the future relations of those involved and the community as a whole were considered seriously.

It was reported that after the land conflict was resolved the traditional councillors as facilitators dug stretches on the disputed land. There was no use of pillars because land certificates were not offered. Instead a peace plant (*nkeng*) was planted on the demarcation for peace to grow among the litigants. Focus group discussion revealed that about 80% of land dispute cases in the community were adjudicated by the traditional council.

Arbitrators

The traditional councillors were also arbitrators in land disputes. As the highest traditional and body in the community (*Kwifon*), they had the responsibility placing the peace plant (*nkeng*) on the disputed land. Cameroon law viewed removing a boundary mark as an offense, so too tradition in the study community viewed removing the *nkeng* as an abomination. One councillor had this to say:

any defaulter who removed the peace plant was fined with five goats. Money was not mentioned because it is an imported culture and we stick to ancestral ways. These goats can be converted into money and paid by the defaulter.

McCormick (2007) substantiates this by stating that in Africa local people obeyed authority due to the weight of tradition or the allure of a leader/

prophet whereas modern law seems to represent only a formally procedural shell and no practical moral substance of its own. Conflict resolution patterns are embedded in the norms and customs of a society. The following section discusses the strengths of traditional councillors in land dispute adjudication.

Strengths and Limitations of the Traditional Council in Land Disputes Adjudication

The following were identified as strengths of traditional council in land dispute adjudication:

1 Low Legal Consultation Fee and Accessible

Interview with key informants including community leaders and elders indicated that in the study community the legal consultation fee to present a land claim case to the traditional council was 3200 FRS CFA, approximately (\$6). In addition, food and drinks for the councillors were needed. This amounted to a total of 5000 FRS CFA (\$10). Information from focus group discussion showed that this amount was affordable to most community members and made traditional justice institutions such as the traditional council more affordable and accessible. Moreover, the community members knew and respected the councillors involved; hence the council was less intimidating than formal courts. This was considered, from the study community perspective, an appropriate way to resolve family and community conflict, with a lower “social cost” than taking relatives to court.

2 Speedy Process of Adjudication and Judgment

According to the key informants, it could take a week to investigate and resolve a land dispute case depending on the availability of both parties (present in time). The first day was for oral evidence and second day inspection of disputed land for each party to show boundaries confirmed by witnesses. The adjudication and judgment timeframe depended on the nature of the case. Some cases could take up to a year. However, land dispute cases were carried out on market days or country Sunday (*Sunday on the community/indigenous calendar*) and at least 2 to 3 cases were settled.

However, the process was faster than in modern courts. This was due to the implications if the case took a long time. The traditional councillors

stated that disputing parties were not treated as an entity but as part of a broader society. A long case affected many people because family members, sons, daughters were likely to suffer the socio-economic and psychological torture of a pending land claim case. One community elder elaborated this as follows:

for our people the institution of traditional leaders and its procedures of governance are not only a simpler form of government, but also a more accessible, better understood and a more participatory one... It is more accessible because it is closer to them than any other foreign system of governance; the people have more direct access to their leaders in the community because they live in the same village and because any individual can approach a community leader and ask him or her to call a meeting; decision making is based on consensus... harmony and unity prevail because the interests of the community, rather than an individual or group of individuals, are pursued and expressed.

Focus groups discussions showed that the traditional councillors used their practical wisdom, community experience and history to resolve untitled land claims. This was possible because most village land was inherited. Therefore, besides knowing the family history of the community members, they investigated the land marks, that is, the *nkeng* plants which formed land boundaries and consulted neighbours of the disputed land areas.

3 Use of Local Language in Traditional Council

Traditionally, the local language was used in court proceedings during cross-examination of cases among litigants. This enabled people, especially the elderly to understand the proceedings. In cases involving a community member and foreigner, an interpreter was put in place for the benefit of the foreigner. It was on the basis of this that local people in the study community preferred the traditional council to settle their land disputes.

4 Restorative Justice

During the focus group discussions and interviews with key informants, it was reported that traditional councillors exercised some form of restorative justice system in land dispute adjudication. According to the community

members, this approach to justice promoted reconciliation among the people. This was explained as due to the fact that in an attempt to repair the damage caused by one party, the council preached peace, advocated dialogue, called for apologies, and requested the payment of reparations to the aggrieved party. Sometimes the offender would be requested to pay back the aggrieved consultation fee.

According to community elders, restorative justice as practiced in the community sought to combat crime through the introduction of community mediators who brought the victim and the offender together, on a voluntary basis, to resolve petty crimes for the interest of the community as a whole instead of taking them to court. One councilor stated that from the community perspective, the community interests and harmony were more valuable than individual interest. This was due to the fact that whatever happens to the individual as a member of the community affects the whole community in one way or another and the other way round.

5 The Dynamic Nature of Customary Law in Land Ownership

Focus group discussions disputed the western generalization that customary laws were static and rigid. It was argued that the traditional councillors did not cast customary land rights in stone like the Ten Commandments. They followed critically and objectively procedures instituted and approved by the community to guide them in resolving and reaching decisions over various disputes for the interest of the community as a whole. For instance, in most cases the council settled amicably the farmer-grazer disputes and the grazers paid compensations for crops destroyed. However, they admitted that customary laws were not written or codified but series of events that changed constantly according to circumstances of their application and nature of the dispute to be resolved.

The following weaknesses were identified of traditional councillors and customary law practices.

(i) Gender and Age Discrimination

The study observed that the Executive Board of the traditional council comprising of (chairperson and vice, secretary and vice, treasurer, financial secretary and four messengers) was exclusive of women and youths. It was, however, stated that should not be treated as an exclusive form of

discrimination because the *Fumbuen* (women sacred organization) was a socio-political and structural based organization that among other functions engaged to protest the destruction of food crops by livestock (but did not deal with land issues). Perhaps it was on the basis of this male chauvinistic attitude that the *Fumbuen* emerged in the 1960's in their own right to challenge the authority and discriminatory character of the traditional councillors and to protect their own interest as community and household food providers.

(ii) Criminal Cases in Land Dispute

It was found that the severity of a criminal offense could not be measured by traditional councillors. Therefore, they quickly recommended serious criminal cases to be handed to the police and government administration. At this juncture there was need to appreciate the wisdom, consciousness, and sensitivity of the traditional council.

(iii) Corruption

In spite of the reputable character of most traditional councillors, it was reported that some were prone to corrupt practices. For instance, local Fulani cattle grazers bribed the councillors in land cases which stifled justice to prevail among the litigants especially in cases that involved cattle grazers and crop farmers. It was also reported that some rich cattle grazers and crop farmers in the community by passed the authority of the traditional council and took the law into their own hands in resolving land disputes.

Integrating Customary and Modern Law in Land Dispute Adjudication

It was reported during focus discussions that in spite of formal efforts to recognize customary land rights, in practice customary systems continue to operate independent of the state system. This led to tensions, especially with prevailing religious legal traditions. These tensions were more visible in the protracted land crisis that led to the murder of Fon Vugah II. An attempt to undermine customary land rights may have serious negative repercussions because it is tantamount to undermining the traditional value of the people and the basis of their existence in an agricultural based community.

Strategies to Strengthen the Capacity of Traditional Councillors

Interviews with key informants and information from focus group discussions provided the following strategies to improve the customary justice system in land resolving land disputes:

Skills and Capacity Building

There was need to organize training programmes for traditional councillors to capacitate them on modern legal systems, i.e. on civil, criminal, and statutory law. Interviews, focus group discussions and observations revealed that very few councillors informed of the modern legal systems and were capable of handling complex modern issues related to land disputes in the community.

Financial Support

There was lack of sufficient budget to manage the affairs of the traditional council structure. There was need to support financially for the following reasons:

- The council did not have any running budget.
- To fight corruption in that most cattle grazers used their financial might to bribe some of the leaders involved in the land dispute adjudication.
- Traditional council land dispute committee was more of a voluntary job. Little or no compensation was given to the main actors.

Conclusion

The study revealed that in spite of the introduction of western governance institutions by colonialism in Cameroon, traditional processes and structures such as the traditional council were still used to resolve local community land disputes. These structures were still popular among the local people because they were considered affordable, accessible, speedy and appropriate to the cultural values of the people, especially their use of local languages in their operations and participatory character. All stakeholders in the dispute were directly involved in the process.

As part of the people's cultural practices, the approaches used in the proceedings were understood by the community members. However, these traditional structures of justice and conflict resolution were characterized by gender and age group discriminations. There was limited participation of women and the youth. They had also a limited capacity to deal with complex land disputes and other forms of conflicts characteristic of modern times; in spite of formal efforts to recognize them, in practice they continue to operate independent of the state legal systems and characterized by corruption and abuse of power by rich members of the community.

On the basis of the above, the following recommendations are made: the traditional councillors need to be supported financially, capacitated in terms of training in modern civil, criminal and statutory legal systems, so that they are conversant with both justice systems; councillors need to be monitored to avoid corruption among them and protected against abuse of authority by certain rich community members who bypass the council and take the law into their own hands.

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Relationship between Traditional Leadership and the Local Municipality: Challenges and Prospects for Service Delivery



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There are significant challenges but also prospects in the relationship of Traditional Leadership and Local Municipalities. This importantly impact on service delivery. With special reference to the Ratlou Local Municipality (RLM) in the North-West province, this participatory research case study aimed at an in-depth understanding of this problem. It found that the relationship between the institutions is characterised by a lack of coordination and integration of functions including overlapping of services, hence confusing community members. Corruption and power struggles mean that they do not engage service delivery to communities. They therefore fail to mobilise community initiatives for sustainable development. The study makes recommendations in line with the Traditional Leadership and Governance Framework Act (2003).

Keywords: Traditional leadership, Ratlou local municipality, challenges and prospects, service delivery, North-West province

Introduction

A number of studies “have affirmed the resiliency, legitimacy and relevance of African traditional institutions including governance in the socio-cultural, economic and political lives of Africans”, particularly in the rural areas

where the majority of the people live and these institutions operate. “Juxtaposed with this is the sometimes parallel “modern state”, vested with enormous authority in rule making, application, adjudication and enforcement”. The chapter argues that as Africa struggles to build and strengthen capable states and modern governance institutions, there is need to recognize and address fully this “challenge of duality” (cf. Economic Commission for Africa, 2007; cf. also Meynes, 1998).

We can separate broadly “the roles that African traditional authorities can play in the process of good governance, into three categories: first is the their advisory role to the government as well as their participatory role in the administration of regions and districts; second, their developmental role, complementing government’s efforts in mobilizing the population for implementation of development projects, sensitizing them on health issues such as HIV/Aids, promoting education, encouraging economic enterprises, inspiring respect for the law and urging participation in the electoral process; and third, their role in conflict resolution, an area where traditional leaders across Africa have already demonstrated success”. It is argued that the challenge is not “whether the traditional and “modern” system of governance are competing against each other but how to integrate the two systems more effectively in order to better serve the people in terms of representation and participation, service delivery, social and health standards and access to justice” (cf. Economic Commission for Africa, 2007; cf. also Anaya and Williams, 2001).

Webster (1971) defines tradition as the handling down from generation to generation of the same beliefs, customs and cultural practices especially by word of mouth to particular social group or culture. The word tradition itself is derived from the Latin word *traditus*, which means to deliver. According to Scott (2006) the word tradition also means a long established custom or practice that has the effect of unwritten laws, specifically for any usage of knowledge or literature handed down through generation to generation. He further outlines that the customary practices tend to be received authoritatively because they cannot be challenged by the individual as is the case in a democracy.

“African countries are characterized by fragmentation of various aspects of their political economy, including the institutions of governance. Large proportions of the rural populations, who form the overwhelming majority in most African countries, continue to adhere principally to traditional institutions. The post-colonial state essentially emulates western

institutions of governance, which are often at odds with traditional African cultural values and the region's contemporary socio-economic realities. The fragmentation of the institutions of governance, along with economic and social fragmentation, has contributed to Africa's crisis of state-building, governance and sustainable economic development" (cf. Economic Commission for Africa, 2007; cf. also Hinz and Sindano, 1998; Van Rouveroy, 1996; Miller, 1998). This is partly attributed to its "detachment from the institutional and cultural values of its constituency. The prevailing state of poverty on the continent, the persistence of widespread ethnic and civil conflicts, and frequent electoral and post-electoral strife are some of the manifestations of the failure of the state". Moreover, "the persistence of traditional institutions as a parallel system of governance, which provides some level of refuge for the rural population, often alienated by the State, is also another indication of the post-colonial State. On the other hand, African traditional institutions of governance are also not equipped to compensate adequately for such failure of the state. This is due to the fact that in addition to their local orientation, many of these institutions face a number of limitations, especially in the areas of accountability and gender equality. Many are also hampered by their inability to define and secure property rights, thereby raising the transaction costs of resource allocation to their constituencies" (cf. Economic Commission for Africa, 2007; cf. also Okafor, 1992).

Furthermore, "the growing economic diversity and complex division of labour, which mark the present era of globalization, are largely beyond the scope of traditional institutions. These institutions are, therefore, unlikely to be able to cope with poverty alleviation among their constituencies without the stewardship of the State". It is on the basis of this that the chapter argues that "Africa's deepening crisis is thus unlikely to be reversed under the existing duality of institutions. The formal institutions of the State, i.e. rules regulating the structure of polity, property rights and contracting, cannot be effective if they disregard or contradict the customary rules of the traditional institutions which govern the lives and livelihood of large proportions of the population. For instance, the State is unlikely to succeed in state-building and in mobilizing the cooperation of large segments of its citizens for socio-economic development without connecting itself to and harmonizing its political apparatus with the institutions, cultural values and interests of its constituencies including rural populations" (cf. Economic Commission for Africa, 2007; cf. also Okafor, 1992).

Barrett (1996) looks at traditional governance as a form of leadership in which the authority of an organization or a ruling regime is largely tied to tradition or custom. The main reason for the given state of affairs is that it “has always been that way”. Cook (2005) adds that traditional authority is built up by roles, customs and practices that are accepted into rituals of life.

“African traditional institutions of governance are diverse” (cf. Meynes, 1998). They have evolved significantly from their pre-colonial forms in tandem with transformation of the continent’s political systems, during the colonial and post-colonial eras. Despite their complex diversity, much of the post-colonial independence literature classifies African institutions of governance into two types, based on their pre-colonial forms (cf. Economic Commission for Africa, 2007):

(i) The consensus-based systems of the “decentralized pre-colonial system with law-making, social control, and allocation of resources carried out by local entities, such as lineage groupings, village communities, and age-sets. These systems were largely based on consensual decision-making arrangements that varied from one place to another [T]he fundamental principles that guided the systems included curbing the concentration of power in an institution or a person and averting the emergence of rigid hierarchy. The settlement of conflicts and disputes involved narrowing of differences through negotiations rather through adversarial procedures that produce winners and losers”. The systems are “based on respect for the rights and views of the individual, as individuals could veto the opinions of the majority”.

However, “individuals were also expected to respect the wishes and interests of the community by accepting compromises, as they could face various forms of community censure including social isolation, if they failed to do so. The extent to which minority views were accommodated enabled these systems to prevent conflicts between minority and majority segments of a community” and it avoided “the existence of political and social gaps between the governed and those who govern, as eligible members participated in both the creation and enforcement of rules”. Examples are the “Ibo village assembly in eastern Nigeria, the Eritrean village *baito* (assembly), the *gada* (age-set) system of the Oromo in Ethiopia and the council of elders (*kiama*) of the Kikuyu in Kenya” (cf. also

Shillington, 2005; Bennett, 2004; De Villiers, 1997; Anderson, 1993 and Schapera, 1972).

(ii) The chieftaincy of the centralized political systems which was established in other parts of Africa with kings and monarchs. “The level of centralization and concentration of power in the hands of the leaders varied from place to place. In some cases, such as Abyssinia (Ethiopia) and Rwanda, the rulers enjoyed absolute power. In most other cases, the power of the rulers was restrained by various arrangements, including the institution of councils. (For further theoretical work see Logan, 2009; Bless *et al.* 2006; Durham, 2002; Solomon, 2000; Sharma, 1999; Ray, 1999; Keubler, 1998; Migdal, 1998 and Bhengu, 1996.)

On the basis of the above background the chapter discusses the challenges and prospects with regard to the relationship between traditional leadership and local municipality council in South Africa with special reference to the Ratlou Local Municipality (RLM) in the North West province of South Africa. Ratlou Local Municipality is one of the five local government municipalities in the Ngaka Modiri Molema District Municipality (North West province). The other local municipalities in the District are Mafikeng, Ditsobotla, Ramotshere and Tswaing.

The RLM is predominantly rural and the main socio-economic activity is agriculture, both crop and animal production. The RLM came into the existence in 2000 after the demarcation Act 24 of 1998 which enforced every part of the country to be part of local government. It has a population of about 100000 people the majority (98%) of them being Africans belonging to the Batswana tribe. The RLM comprises of 12 wards made up of 37 villages under traditional leadership (Chieftaincy) of different Batswana ethnic groups, that is, the Barolong boo - Ratlou boo - Seitshiro, Barolong boo - Ratlou boo - Maribi, Batlharo boo - Masibi and Barolong boo – Ratshidi. It is one of the local municipalities in South Africa which demonstrates the way colonial and apartheid administration systems undermined traditional governance and sustainable socio-economic development in local communities.

Hinz and Sindana (1998) indicate that in South Africa, colonialism and the apartheid systems of separate development undermined greatly the relationship between traditional leaders and their people. The Apartheid

system perpetuated and strengthened the division among tribes. Colonialism and apartheid system gave traditional leaders powers and roles they did have in the African traditional governance systems. For instance, one of these colonial legislations was the Black Administration Act 38 of 1927 which authorized government to create and divide tribes and appoints any person colonialism preferred to be a tribal chief or headman (Nthai, 2005).

Furthermore, in 1951 the apartheid government continued to strengthen its power over African traditional institutions by passing other laws, such as the Bantu Authority Act of 1951. This enforced every black person to be under traditional authorities. These legislations gave traditional leaders powers to make by laws, acquire and hold land in trust of their subjects or community. It is through this Act that the former African self - governing states and the TBVC states (Transkei, Bophuthatswana, Venda and Ciskei) were created. In the process some artificial communities and leaders were created.

African Traditional leaders connived with the apartheid government in the enforcement of the apartheid system of separate development. Traditional authorities were responsible for the allocation of land held in trust, the preservation of law and order, the provision and administration of services at local government level; social welfare administration including the processing of applications for social security benefits and business premises; and promotion of education, including the erection and maintenance of schools and administration of access to education finance (Houston and Somadoda, 1996).

Duesing (2002) states that colonialism and apartheid in South Africa deprived the African people not only their land and dignity but also their indigenous systems of governance. The post-independence governments in Africa dealt with the issue of traditional leaderships differently.

First, were those post-independence African leaders who viewed the chiefs as a threat to their power and an impediment to modernisation and nation- building. Therefore, they curtailed their role in national politics (Ubink, 2008).

Second, were those leaders who looked at the institution of traditional leadership as instruments of ethnic, sectarian or particularistic claim, and hence were abolished as soon as the new elite assumed power. The approach was used in Guinea Conakry and

Tanzania. They abolished the institution of traditional leadership completely.

Third, are those post-independence governments such as in Kenya, Botswana and South Africa, who incorporated the institution into the new government system. In these countries traditional leaders became part of the new government and were recognised by their respective constitutions.

In South Africa, during the negotiations of Convention for Democratic South Africa (CODESA) which paved the road to the new democratic South Africa, the issue of the institution of traditional leadership nearly derailed the negotiations process. The challenges were how to accommodate the institution of traditional leadership in a democratic South Africa, particularly in rural areas, where traditional leaders operated. It is through the strong participation of traditional leaders in the negotiations led by Contralesa (Congress of Traditional Leaders in South Africa) and leading up to the 1993 Interim Constitution (as well as the then forthcoming elections), that traditional leaders were recognised in terms of the Constitution. The interim Constitution provided for limited recognition of the institution. The constitutional recognition of the institution was a remarkable achievement in the new democratic system of governance. This laid the basis for further development and transformation of the institution (Tshehla, 2005; De Villiers, 1997; Hlwengwa, 1994).

The other hand, believed that traditional leaders are a symbol of tribal unity, maintained peace, conserve tribal cultural values and customs, allocate land to their subjects, resolve conflict in local communities and promote community identity (Hlwengwa, 1994).

However, the creation of the new constitution which promotes democracy, equality, fundamental rights and national unity, had to look into the institution of traditional leadership. Currently the constitution of the Republic of South Africa, Chapter Twelve (12) makes provision of full recognition of the institution of traditional leadership, according to customary law subject to applicable legislation. However the same legislative fails to clarify the role and function of traditional leaders in their respective tribal communities. The Constitution states that provincial or national legislation may provide for the establishment of houses of traditional leaders and a council of traditional leaders. Currently seven of the nine provinces

have established these houses excluding Gauteng and Western Cape provinces where the houses of traditional leaders do not exist. The constitution also on Chapter Seven (7) provides that every area has to be part of local government including those areas that were under traditional authorities.

The 1996 constitution introduced a new constitutional arrangement for the whole country and assigned governmental functions across the three spheres of government that is national, provincial and local governments (Act 108 of 1996). Within this context, the powers vested on national legislature by the constitution, the demarcation Act 24 of 1998 was passed and through this legislation all territories within the republic become subjects to local municipalities.

Nevertheless, the traditional leaders viewed the extension of municipal boundaries to their jurisdiction as a process that will lead to traditional leaders losing authority and power over their subjects. The South African government, on the other hand, had argued that the democratic process of governance would increase participation and involvement of traditional leaders and their communities on matters of administration particularly those who reside in rural areas where this institution are predominant (Bekker, 1998).

Chapter seven of the South African Constitution (1996) deals with local governance and vests more functions and powers into the Local Municipal Councils including planning, social and economic development of local communities. However, Traditional authorities remain custodians of tribal lands in trust of their respective tribal communities. The Post-apartheid demarcation Act of 1998, carved up parts of areas under traditional authorities into electoral wards under local government municipalities and councillors. This tends to limit the powers of traditional leaders in the local community governance and leads to overlapping of roles between traditional leaders and the elected municipal councillors. Despite the legislative provision for traditional leadership the debate around their place in the Democratic South Africa continue to exit.

The chapter discusses the following aspects: the socio-economic and demographic characteristics of the respondent community members; the relationship between traditional leadership and the RLM and implications on service delivery; community members' views on the relationship between traditional leadership and the RLM; and the issue of service delivery to local communities from the community perceptions.

Methodology

The study used a case study and participatory approach in order to have an in-depth understanding of the research problem. Conrad (2002) describes a case study research strategy by indicating that rather than using large samples and following a rigid protocol to examine a limited number of variables, case study methods involve an in-depth, examination of a single instance or event. They provide a systematic way of looking at events, collecting data, analysing information and reporting the results. As a result the researcher may gain a sharpened understanding of why the instance happened as it did, and what might become important to look at more extensively in future research. The unit of analysis was the Ratlou Local Municipality in the North-West province of South Africa. It is the poorest local municipality in the province in terms of services and has the highest unemployment rate (over 60%). It has no urban centres.

Macaulay (2007) defines participatory research as a research method in which researchers work in partnership with “those affected by the issue under study”. The goals of participatory research are to undertake high-quality research, benefit the community or group where the research is occurring, and develop knowledge applicable to other settings. In these study community members, especially the knowledge holders such the traditional leaders and councillors were actively involved in the whole research process. Their views were sought in all stages of the research including the selection of study cases and interpretation of the data collected.

In- depth interviews and focus group discussions were conducted with key persons in the RLM, that is, the tribal chiefs and local government officials including councillors. Their participation was based on their wide knowledge and experience on the research problem. In cooperation with the tribal and local municipal authorities a questionnaire (with both closed and open-ended questions) was administered to a stratified random sample of 50 community members (50 males and 50 females). The purpose was to solicit the views of the community members on the research problem, especially its impact on service delivery. The sample was stratified on the basis of gender to provide equal participation of both gender sections society in the study. Scott (2006) defines stratified random sampling procedure as a method used to divide a population into homogeneous subgroups (strata). Each stratum is then sampled individually. The researcher may separately evaluate the sample results or may combine them to furnish an estimate of the characteristics of the total population.

Qualitative data in the form of audio taped interviews were transcribed and translated from Setswana into English. Interview and participant observation notes were typed and a content analysis conducted. Cohen and Manion (2000) explain that in content analysis researchers/evaluators classify key ideas in a written communication, such as a report, article, or film. Evaluators can do content analysis of video, film, and other forms of recorded information, but in this chapter, we focus on analysing words. It is a systematic, research method for analysing textual information in a standardized way that allows evaluators to make inferences about that information. The central idea in content analysis is that the many words of the text are classified into much fewer content categories. The classification process, called “coding”, consists of marking text passages with short alphanumeric codes. This creates “categorical variables” that represent the original, verbal information and then be analysed by standard statistical methods. The text passages can come from “structured interviews, focus group discussions, case studies, open-ended questions in survey instruments, work papers, agency documents, and previous evaluations”. The large quantities of written material that evaluators typically collect during a project, especially when it comes from diverse and unstructured sources need thorough examination.

To classify a document’s key ideas, the researcher / evaluator identifies its themes, issues, topics, and so on. Content analysis can go further if the researcher/evaluator counts the frequency of statements, detects subtle differences in their intensity, or examines issues over time, in different situations, or from different groups.

Vestra (2003) defines quantitative data as information based on numbers or statistics that describes programs, activities and populations. The data come from closed-ended questions, random samples, counting, etc. In this research study quantitative data from the questionnaires were checked, coded and were analysed using SPSS/PC+.

Presentation and Discussion of Findings of the Research

The Socio-Economic and Demographic Profile of the Respondents

In order to describe the socio-economic and demographic characteristics of the respondent community members, they were asked through a

questionnaire to indicate their age groups, marital status, educational, religious affiliations, etc. The results are discussed below:

The majority of the respondents (60%) were in the age group of 40 years and above. Interviews and focus group discussions showed that they had great knowledge about the relationship between traditional leadership and local municipal government in their respective communities; sixty two percent (62%) of the male respondents and sixty two per cent (52%) of the female respondents were married. Interviews and group discussion revealed that RLM being predominantly rural and still traditional, the marital status of a person (male and female) played a key role in the social status of a person. Married people including their views on socio-economic issues were more respected than of non-married people.

On the issue of the educational levels of the respondents the majority of respondents (67%) had secondary school level of education and below. However, due to their life experience in the local communities, through in-depth interviews and focus group discussion, the study found that they had a wide knowledge on the research problem. The RLM being rural and traditional, the study was also interested in investigating the religious affiliations of the respondents. The findings showed that the majority (81%) of the respondents was Christians of different denominations and 17% belonged to African traditional religions. Only (2%) were affiliated to other religions including Islam.

The Relationship between Traditional Leadership and the RLM: Implications on Service Delivery

The respondent community members were asked in face-to face interviews and focus group discussions to express their views on the relationship between the traditional leadership and the Ratlou Local Municipality; and how this relationship impacted on service delivery to the community.

In-depth interviews with various traditional leaders in the RLM showed that some of their traditional roles and functions of promoting community development in their areas as indicated in the Traditional Leadership and Governance Framework Act (2003:31) overlapped with the constitutional duties placed on the local municipality. This brought conflict between the two local community governance entities. Traditional leaders argued that being familiar with the local terrain and culture of their people; they could articulate the needs and priorities of their communities including

mobilizing community support for development activities better than the elected councillors.

Besides facilitating good communication between their tribal communities and the local municipal council including encouraging community participation in development activities, they cited various development projects including schools, early learning centres, tribal office which was initiated by them and their communities without the support of the local municipality. However, interviews with various stakeholders including community members revealed that most of these projects cited by the traditional leaders were done before the new democratic dispensation in 1994.

More than 90% of the respondent traditional leaders interviewed indicated that RLM tended to ignore them when issues of socio-economic development and service delivery were discussed. As custodians of tradition and holders of land on behalf their tribal communities they were supposed to be involved in all stages of the development process and service delivery in their communities. In practice the RLM only consulted with them when they wanted to implement their development plans and requested land from the tribe. The local municipality needed land in order to execute its development plans. They could only get land from the traditional leaders.

Eight two per cent (82%) of the respondent traditional leaders did not view the RLM as a relevant and legitimate structure to govern in their tribal areas. They expressed dissatisfaction with the refusal of some ward councillors to accept and use their advices and contributions with regard to affairs that affected their respective tribal communities. Furthermore, they considered the RLM as an institution that did not promote development rather than as a structure that created conflicts in the tribal communities.

The study wanted to establish the views of the RLM councillors with regard to their relationship with the traditional leaders. The majority of the respondent councillors (85%) indicated that they worked hand in hand with all stakeholders including the traditional leaders. However, they raised the concern over the attitude of traditional leaders towards development initiatives. They stated that some traditional leaders in some instance rejected local municipality initiatives to promote development programmes. When asked how the traditional leaders were practice involved in service delivery and socio-economic development besides making tribal land available, there was no clear explanation.

Community Members Views on the Relationship between Traditional Leadership and the RLM

The study wanted to establish from the respondent community members about their views on the relationship between the RLM and the traditional leaders in their respective local communities. The majority of them (87%) indicated that the relationship was not good. Interviews and groups discussions with the various stakeholders including community members in RLM revealed traditional leaders (Chiefs, headmen) and their councils, were not actively involved in the democratic governance of the local communities. They were busy concerned with the security of their positions in the new democratic dispensation. According to the respondents the two local governance institutions appeared to function separately, although they were expected to serve the same communities.

More than 80% of the respondent community members indicated that there was no collaboration between the two institutions of local community governance. It was argued during focus group discussions that this situation existed in spite of the fact that there were legislations (The Traditional Leadership and Governance Framework Act 41 of 2003) in place which encourages cooperation and partnership between them in serving local communities. The functions of the two local governance structures were not coordinated and integrated including their strategies for the socio - economic development of the RLM.

This was due to the belief on the part of the traditional leaders that the ward councillors wanted to take-over their traditional functions in their rural areas. The other respondents also argued that the lack of cooperation was also caused by the attitudes of some of the elected councillors toward the chiefs. They viewed themselves as the only democratic legitimate structure to promote community development and service delivery. They looked down upon the traditional leaders as an obstacle to socio-economic development and service delivery to the communities.

Seventy eight per cent (78%) of the respondent community members had the opinion that traditional leaders played a critical role in the socio-economic and cultural development of their tribal areas as they were responsible for regulating the allocation of land, acted as a traditional heads of their tribe, consulted with communities through tribal meetings (*Pitso*) that initiated development plans, protected cultural values, presided over customary courts due to being the representatives and custodians of the tribal communities. However, 22% of the respondent community members stated

that they preferred the leadership of the local municipality because it was democratic and provided basic services to the people and created employment opportunities. They believed that the chiefs (*Dikgosi*) should only focus on traditional and customary issues. They should not involve themselves in matters of community development.

Moreover, it was pointed out during focus group discussion that the educational levels of both the councillors and traditional leaders were a source of poor relationship between these two local governance entities. Most of the traditional leaders and councillors had educational levels below standard ten. They had very limited knowledge about the political and constitutional imperatives of their positions in relation to one another and service delivery to the local communities.

The Issue of Service Delivery to Local Communities: Community Perceptions

The problem of service delivery by local municipalities is the most discussed issue by most South African citizens in both rural and urban areas as testified by the many demonstrations in the various parts of the country including the North-West Province. The common view and perception is that the local municipalities were under – performing in delivering services such as healthcare, roads, sanitation, water, housing, employment opportunities, etc.

The study found that more than 85% of the respondent community members in the RLM indicated that the local municipality did not deliver services to communities in accordance to their constitutional mandate. More than 90% of the respondents stated that service delivery was either too slow or none existence in the local municipality.

Interviews and focus group discussions revealed that the community members were concerned about the non- involvement of community members in development initiatives and processes. This is in spite of the fact that community participation was one of the essential principles in development process of the democratic South Africa. It contradicts with Municipal Systems Act (Act 32 of 2000) which encourages municipalities to use the Integrated Development Plan (IDP) as a basis for community involvement in development initiatives and as a tool to accelerate service delivery. This is based on the realization that community participation in the development process of their respective communities leads to greater acceptance of development activities as it gives people the feeling of

ownership of the process and development programmes and projects (Khoza, 2002).

Mogale (2005) emphasizes the importance of cooperation among the governance structures in the RLM for the service delivery to local communities, taking into consideration the socio-economic situation of this local municipality as described below: The RLM is one of the poorest local municipalities in the Ngaka Modiri Molema District Municipality. The unemployment rate in the RLM is over 70%, especially among the youth and women. This was attributed to the lack of sustainable industrial development which was compounded by lack of skill development. Less than 2% of the population had tertiary level education (Mwafrika Research and Empowerment, 2008). Direct observation during the research in the RLM showed that the local municipality was characterised by inadequate municipal services such as poor transport and road system as many of the roads were still gravel roads, poor telephone land lines, and shortage of water supply, poor sanitation and refuse services, etc.

It was argued during focus group discussions with various stakeholders including community members that service delivery to communities is a constitutional right of every South Africa citizen. However, this right it is not fulfilled by those who have been given the responsibility to ensure it is being realized in the local municipality. The poor relationship between the local municipality and traditional leaders including corruption were cited as contributing factors to this failure.

Conclusion

The study revealed that the relationship between traditional leadership and local municipality in Ratlou local municipality was not coordinated and integrated. The two entities of local governance in the study area were more concerned with political issue than service delivery to the communities. Their views on the socio - economic development of the local communities were not integrated. Their roles tended to overlap. There was dissatisfaction between them. The traditional leaders were not happy with the powers of the local councillors and the latter looked at the former as obstacles to development. This impacted on service delivery to the local communities. Moreover, the local municipality failed to encourage and involve the different stakeholders in the development initiatives of the local municipality.

Based on the findings of the study the following are the recommendations:

- The establishment of local house of traditional leadership as required by traditional leadership and Governance Framework Act (2003). The house will consist of all traditional leaders within the Ratlou local municipality. It is through this house that all matters concerning the institution of traditional leadership and its role in the development of local communities should be discussed.
- The provincial government should play an active role in facilitating a cooperative relationship between the two local governance entities to improve service delivery to communities;
- Strategies should be developed to improve the channels of communication between the two local governance entities in accordance with the Traditional Leadership and Government Act 2003. The Act encourages cooperation between the two entities.
- There should be openness and transparency, i.e. all issues that relate to traditional leaders and Ratlou local municipality should be discussed with all stakeholders including the traditional leaders.

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The Role of Broadcast Radio in Promoting Indigenous Rural Innovations and Research in Tanzania



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Based on a participatory research case study conducted in the Mombo Division in the Tanga Region, Tanzania, this chapter engages the appropriateness of broadcast radio as a tool for disseminating indigenous knowledge and local community innovation systems in the remote rural areas of Africa. It found that the local community views broadcast radio as affordable, culturally acceptable and widely accessible. A number of indigenous farmer innovations which were promoted through the broadcast radio are cited. The study reveals that various stakeholders including researchers and policy makers are increasingly learning about the importance of such affordable and appropriate public communication systems for rural development. The chapter makes some seminal suggestions concerning the promoting of the use of broadcast radio in local rural communities for sustainable rural development.

Keywords: Broadcast radio, indigenous rural innovation, formal research, Mombo Division

Introduction

Indigenous community innovations through informal experimentation have always been happening in African local communities, both rural and urban (World Bank, 2005). Murray (1996) defines indigenous community

innovation as the process through which individuals or groups discover or develop new and better ways of managing resources including building on and expanding the boundaries of their indigenous knowledge systems. According to Wongtschowski (2006) these innovations are mostly generated by groups rather than by individuals.

Isard (1995) on the other hand, defines indigenous knowledge (IK) as the knowledge that grows within a social group or community, incorporating learning from own experience over generations but also knowledge gained from other sources and fully internalized within local ways of thinking and doing.

Salim (2001) and Summers (2000) show that in various parts of the Southern and Eastern Africa over the years African indigenous knowledge (IK) and innovation systems have been overlooked in the search process for sustainable and new solutions to the mitigation against food insecurity, malnutrition, unemployment and poverty due to various factors which include: they do not carry high income gains; there are no modern scientific records of their efficacy; the local farmer innovators lack organizing frameworks and information as to who needs their innovations, how to find the users, when to approach them, why they should approach them, and whether the receivers will appreciate the efforts. The lack of organizing frameworks makes African indigenous innovators not to utilize fully the potential gains from their innovations

According to Wava and Donald (2002) less understood among policy makers, development agencies and other stakeholders is the particular ways and manner in which African Indigenous Knowledge and innovation systems interact with other productive resources (for example, natural resources, capital, finances etc.) in the context of sustainable development within productive sectors such as agriculture, natural resource management, etc. In her discussion on the importance of recognizing and promoting African indigenous community innovations in agriculture and natural resource management Edwards (2002) states that current mechanisms of funding research and development favour formal elite organizations, such as international research centres, universities, government institutions, Non-Governmental Organizations (NGOs) etc. These organizations favour activities that originate from themselves rather than understanding and supporting the farmer-originated and-led initiatives. The resource poor farmers in rural areas cannot access the research and development funds to pursue their own initiatives and cannot genuinely influence these

organisations. Thus, it has been often difficult for farmer innovators to gain relevant information or advice from scientists in interpreting farmers' experimental results, because the farmers cannot bring scientists to see local innovations in the field. As a result of these barriers, local innovations often cannot spread and stimulate ideas among other farmers (World Bank, 2006; Johnson, 2000).

Frank and Schwarzweller (2004) and Mazara (2002) indicate that recently there has been a growing realization and interest among researchers, policy makers, practitioners and other development agencies on promoting the role and the importance of African IK and innovation systems in promoting sustainable development and community livelihood. This is due to the failure of western approaches to sustainable development including food security, mitigation against dreadful diseases such as HIV/AIDS, TB, malaria etc. in local communities. They focused on technical interventions based on external inputs and failed to mobilize local inputs and experiences.

Experience from various parts of the region and Africa at large testify that community indigenous knowledge and community innovation systems contribute greatly to community and household food security, nutrition and alleviation of grass-root poverty, especially among poor women without changing the African indigenous cultural food patterns. They are also appropriate for community food security because most of the locally-grown food is for local consumption (Reij and Water-Bayer, 2004).

Furthermore, Johnson and Glenn (2004) writing on agriculture and natural resource management, provide success stories demonstrating that Africans in various parts of the continent were experienced innovators in their specific circumstances. Excellent examples of African community innovations and discoveries in the Southern Africa region include various types of crop breeding, grafting against pests, water harvesting, soil management, integrated rice-duck farming and various aspects of farmer seed systems including building farmers' seed networks, integration of forage legumes into crop and livestock farming; various types of post-harvest technologies for food security, etc. These are but some manifestations of the diversity and originality of the local agricultural innovators in the region. Murray (2000) argues that these valuable community knowledge and innovation systems are not known to the wider community because they are not documented, and there are no policy strategies nationally and regionally to promote them for sustainable development and community livelihood.

In his discussion about the role of development communication from a rural development and community innovation context, McPhail (2009) looks at development communication as a type of “marketing and public opinion research that is used specifically to develop effective communication” or as the use of communication to promote rural development including community-based innovations. Rogers (1996) and Thompson (1991) are of the view that the theories and practices of development communication sprang from the many challenges and opportunities that faced development oriented institutions in the 20th century. And since these institutions existed in different contexts, different schools of development communication have arisen in different places over time (cf. *Development Communication*, n.d.).

The term “Development Communication” was first coined in 1972 by Nora C. Quebral, who defines the field as:

the art and science of human communication linked to a society’s planned transformation from a state of poverty to one of dynamic socio-economic growth that makes for greater equity and the larger unfolding of individual potential.

“The theory and practice of development communication continues to evolve today, with different approaches and perspectives unique to the varied development contexts the field has grown in”. Manyozo (2006) suggests that “the history field of development communication can be broken down into six different schools of thought, with the Bretton Woods School being the dominant paradigm in international literature, and the other schools being the Latin American, Indian, Los Baños, African and the participatory development communication schools” (cf. *Development Communication*, n.d.).

The “Bretton Woods School of development communication” is a term that has been “applied to the development communication approaches that arose with the economic strategies outlined in the Marshall Plan after World War Two and the establishment of the Bretton Woods Systems and of the World Bank and the International Monetary Fund in 1944. The descriptive term is not widely used in the field, but has been used to differentiate between different “schools” or approaches to development which have historically evolved, sometimes independently, at later points in history and in other parts of the world. Leading theorists under this school included Daniel Lerner, Wilbur Schramm and Everett Rogers. Due to his pioneering

influence in the field, Rogers has often been termed the ‘father of development communication’” (cf. Development Communication, n.d.; cf. also Beltran, 2000).

“Originally, the paradigm involved production and planting of development in indigenous and uncivilized societies. This western approach to development communication was criticized early on, especially by Latin American researchers such as Luis Ramiro Beltan and Alfonso Gumucio Dagron because it tended to locate the problem in the underdeveloped nation rather than its unequal relations with powerful economies. There was also an assumption that Western models of industrial capitalism are appropriate for all parts of the world. Many projects for development communication failed to address the real underlying problems in poor countries such as lack of access to land, agricultural credits and fair market prices for products” (cf. Development Communication, n.d.; cf. also Hadebro, 2002).

“Failure of many development projects in the 1960s led to it reconceptualising its top-down methods (Manyozo, 2006). The school has reviewed its approaches over the years and has been the most dynamic in testing and adopting new approaches and methodologies” (Development Communication, n.d.).

“The World Bank (2006) currently defines development communication as the ‘integration of strategic communication in development projects’ based on a clear understanding of indigenous realities” (Development Communication, n.d.).

Institutions associated with the Bretton Woods School include:

- The United Nations Educational, Scientific and Cultural Organization (UNESCO);
- Food and Agriculture Organization of the United Nations (FAO);
- The Rockefeller Foundation;
- The Department for International Development of the United Kingdom; and
- The Ford Foundation.

“The Latin American School of Development traces its history back further than the Bretton Woods school, emerging in the 1940s with the efforts of Colombia’s Radio Sutatenza and Bolivia’s Radios Mineras. These stations were the first to use participatory and educational rural radio approaches to empowering the marginalized. In effect, they have since served

as the earliest models for participatory broadcasting efforts around the world. In the 1960s Paolo Freire's theories of critical pedagogy and Miguel Sabido's enter-educate method became important elements of the Latin American development communication scene" (Development Communication, n.d.; cf. also McPhail, 2009).

"The history of organized development communication in India can be traced to rural radio broadcasts in the 1940s. As is logical, the broadcasts used indigenous languages such as Hindi, Marathi, Gujarati and Kannada. Independent India's earliest organized experiments in development communication started with Community Development projects initiated by the union government in 1950's. The government, guided by socialistic ideals of its constitution and the first generation of politicians, started massive developmental programmes throughout the country. While field publicity was given due importance for person-to-person communication - also because the level of literacy was very low in rural areas - radio played an equally important role in reaching messages to the masses. Universities and other educational institutions - especially the agricultural universities, through their extension networks - and international organizations under the UN umbrella carried the dev-comm experiments further" (Development Communication, n.d.; cf. also Thusu 2000).

"Development communication in India, a country of sub-continental proportions, acquires many connotations. On one end of the spectrum are the tools and techniques locally applied by charitable and not-for-profit organizations with very close inter-personal relations among the communicators and on the other end is the generic, far-off, one-way sort of communication emanating from the government" (Development Communication, n.d.).

"The need for development communication continues since a large population, over 900 million, lives in rural areas and depends directly on agriculture. Poverty is reducing as percentage of population but still over 200 million are very poor as of 2009. They all, and the urban slum dwellers, need government support in different forms. Therefore, communication from the government remains highly relevant" (Development Communication, n.d.).

"In addition to the indigenous ways, a new form of communication is being tried by the union government to support its developmental activities, though at a limited scale. Called Public Information Campaigns, public shows are organized in remote areas where information on social and developmental schemes is given, seminars and workshops are held, villagers

and their children are engaged in competitions, messages are given through entertainment shows. In addition, government organizations and corporates involved in rural businesses display their wares and services in stalls lining the main exhibition area” (Development Communication, n.d.).

“This approach brings various implementing agencies and service/goods providers while the information providers encourage the visitors to make the best use of various schemes and services available. Some state and provincial governments have also adopted this model to take their development schemes to the masses” (Development Communication, n.d.).

“Community radio is another new medium getting a foothold in rural India, though in patches. NGOs and educational institutions are given licence to set up a local community radio station to broadcast information, advisories and messages on developmental aspects. Participation of local community is encouraged. As community radio provides a platform to villagers to broadcast local issues, it has the potential to elicit positive action from local politicians and civil servants” (cf. Development Communication, n.d.; cf. also Singhal, 1999).

“The African School of development communication sprang from the continent’s post-colonial and communist movements in the late 1960s and early 1970s. Development communication in Anglophone Africa saw the use of Radio and theatre for community education, adult literacy, health and agricultural education”. In 1994 the “Food and Agriculture Organization (FAO) of the United Nations project ‘Communication for Development in Southern Africa’ was a pioneer in supporting and enhancing development projects and programs through the use of participatory communication approaches” (Development Communication, n.d.; cf. Manyozo 2006).

The FAO project, placed under Southern African Development Community (SADC), developed an innovative methodology known as PRCA – Participatory Rural Communication Appraisal, which combined participatory tools and techniques with a strong communication focus needed to design strategies enhancing projects’ results and sustainability. FAO and SADC published a handbook on PRCA and this methodology is still widely used today in various projects around the world”. Meanwhile, radio was being developed as a means of promoting rural development in Francophone Africa, with sponsorship from the Bretton Woods school institutions (Development Communication, n.d.).

The Participatory Development Communication school “focusing on the involvement of the community in development efforts, and greatly

influenced by Freirean critical pedagogy (Freire, 1975) and by the Los Baños school, the evolution of the Participatory Development Communication School involved collaboration between First World and Third World development communication organizations” (cf. Manyonzo 2006). “One of the first examples of development communication was Farm Radio Forums in Canada. From 1941 to 1965 farmers met in groups each week to listen to special radio programs. There were also printed materials and prepared questions to encourage group discussion. At first this was a response to the Great Depression and the need for increased food production in World War II. But the Forums also dealt with social and economic issues. This model of adult education or distance education was later adopted in India and Ghana” (Development Communication, n.d.).

Bukowitz and Williams (2001) show that broadcast radio as a medium of modern communication in rural Africa holds great promise for the promotion and application of African indigenous agricultural innovation systems for sustainable development in rural Africa. Muya (2009) and Croy (1997) show that Information Communication Technologies (ICT), especially the broadcast radio is changing the way African rural communities are now transmitting, receiving, adapting and using new agricultural knowledge and information. The broadcast radio is the most prevalent form of mass media in Africa (Clegg and Palmer, 2001). Its relevance and appropriateness for promoting rural development and innovation lies in its accessible nature, provides greater public accountability and decentralization of services because it constitutes a relatively inexpensive technology that effectively reaches rural people in their own languages (Johnson, 2000).

The chapter is based on a rural innovation experience in a rural community in Tanzania known as the Mombo division in Korogwe District Tanga Region. The division is composed of 12 villages. Most of the people live in remote rural areas with limited transport facilities. In the absence of most modern basic services including modern agricultural inputs and facilities, the local farmers have depended on their own local knowledge and innovation systems for survival in food security, health care and natural resource management.

In 2004 one young lady, Zubeda Shaban, from one of the villages in the division who was trained as a radio journalist, was excited by the various innovative developments in her home area in the division. She communicated her observations with the head of the Centre for Rural Entrepreneurship of the College of Business Education, who also happened to come from the

same area. She also consulted with a rural development NGO which operated in the division, that is, The Mombo Integrated Rural Development Trust Fund (MIDTRUST). They all decided to make these community innovations known to the public through a community radio station based in Tanga town where Zubeda Shaban was working as an intern journalist.

The community innovations in the Mombo division also inspired the Centre for Rural Entrepreneurship of the College of Business Education in Dar es Salaam, Tanzania in collaboration various researchers to conduct a situational analysis on the use and challenges of broadcast radio as a tool for promoting indigenous knowledge and community innovations for sustainable community in the remote rural areas of the Mombo division, Tanga Region, Tanzania. On the basis of the study the chapter discusses the following aspects: the broadcast radio as a tool for participatory communication; and the importance and challenges of promoting indigenous knowledge and rural community innovation systems and research through the broadcast radio.

Methodology

The study followed a case study, qualitative and participatory approach. Edwards (1996) defines a case study as a data collection method that involves in-depth studies of specific cases or projects within a program. The method itself is made up of one or more data collection methods (such as interviews, focus group discussions, etc.).

On the other hand, Taylor (1998) and Van Maanen (1998) define qualitative research as a method of inquiry appropriated in many different academic disciplines, traditionally in the social sciences. It employs research methods that focus on gathering nonnumeric information using focus groups, interviews, document analysis, and product analysis. In this study data were obtained mainly through the interview method, direct observation and focus group discussions.

Participatory research according to Van Maanen (1998) is distinguished from other research techniques in that the subjects usually oppressed or exploited groups, are fully involved in the research, from the designing of topics to the analysis of data. In this study community members in the Mombo division were involved in the whole research process, i.e. in research designing, identification of study cases, data collection and interpretation of the data collected.

Furthermore, taking the holistic nature of IKS and community innovations, the Centre for Rural Entrepreneurship of the College of Business Education, in Dar es Salaam, constituted a multi-disciplinary research team from different disciplines such as sociology, indigenous knowledge systems, agriculture, communication, economics, etc. The team organized field visits to the Mombo Division. The research team included postgraduate students from various institutions who originated from the area and had interest to promote the existing community innovations. The study was also participatory because it involved different stakeholders from the division as knowledge holders. The latter also assisted in the identification and selection of the study cases including the interpretation of the research results.

The research process was to be broadcasted through the radio in order to provide an opportunity for people in the remote areas to air their views and contribute to the process of linking their activities and the research work being conducted. The radio was considered to be the most affordable and accessible channel to disseminate and stimulate farmers' ideas and experiments. It does not need electricity but could be operated using batteries which were available in the rural areas.

A meeting of the different stakeholders was held in Mombo village to identify the appropriate mass media channel and programmes to spread these local innovations to the wider public. A weekly Radio programme on agricultural extension known as "*Ukulima wa Kisasa*" was identified as the most appropriate channel.

The following sections present and discuss the research findings.

Presentation and Discussion of Research Results

The Broadcast Radio as a Tool for Participatory Communication and Promoting Indigenous Rural Community Innovation Systems

In-depth interviews and focus group discussions with the community leaders, local farmers and NGOs involved in the study area indicated that the introduction of the broadcast radio was in itself, an innovation. It was the first time that a broadcast radio station had invited local farmers to present and discuss their practical knowledge and experiences. According to them, in

the past, it had been agricultural scientists and other technical advisors who passed on information to local farmers.

It was revealed that the new broadcast radio programme not only invited local farmers to present their innovations, it also involved researchers, extension workers and other rural development agents to exchange experiences in the local language, that is, Kiswahili. It was also reported that local farmer innovators and other listeners with access to cell-phones could take part in the programme debates from anywhere in the Tanga region. In order to stimulate the participation of as many listeners as possible, the radio programme was also announced in the weekly bulletin of the Tanga Region Agriculture and Fisheries.

Farmers, both men and women provided information on range innovation activities which according to the respondent community members were but a manifestation of the diversity and originality of the local farmer innovators. For example, in Mkomazi and Mkumbara villages, within the Mombo division, local innovations included integrated rice-duck farming; and various aspects of farmers' seed network systems. In Mazinde and Toronto villages, where livestock feed shortage was a major constraint to the adoption of improved cattle breeds, small-holder farmers integrated forage legumes in crop and livestock farming by intercropping maize or elephant grass with forage legumes to improve the quantity and quality of fodder. This had a positive impact on feed, animal performance and income.

In Mbugani Village, small-holder grain farmers constructed at family level, locally appropriate granaries using local knowledge and materials to conserve grain and other cereals for home use and for the market. Researchers' interviews and focus group discussions with local knowledge holders revealed the following advantages of these indigenous granaries:

- Since they were based on local knowledge and materials the costs of construction and maintenance were low and affordable;
- They proved to be durable and appropriate for the local conditions and provided full protection against rats and insects, including cereal borer ;
- They drove out residual humidity without condensation;
- Grain conservation was secured until prices increased. It ensured food security and income until the next harvesting season.

To encourage listeners to follow the programme closely, MIDTRUST introduced a system of prizes. Once every month, a prize of TSh. 20,000 (equivalent to about US\$20) was awarded to a listener who had responded to an innovation question posed during the radio programme. The broadcast radio programme was also used to debate various concerns regarding the limitations of rural development policies and other issues related to promotion of community innovations in the country.

The Challenges of Research, Government Policy and Other Organizational Issues in Promoting Indigenous Knowledge and Community Innovations

The study wanted to establish from the community perspective the limitations of research government extension work and policies with regard to the promotion of IKS and community innovations for sustainable rural development in the division. The following question was posed to them: What are your views with regard to the work of researchers, government policies and the activities of the different development agencies in your communities? This question was posed in focus group discussions and also during the broadcast radio discussions. A number of issues were raised by the respondents which had policy, research and communicational implications:

- (i) There was a linkage gap between research and communication of research findings to small-scale farmers. It was reported that few research centres had active research communication linkages embodied in their work plans and development communication strategies;
- (ii) African indigenous innovators in the local communities tended to be overlooked by government and other development agencies in the search for new and sustainable solutions for sustainable development partly because these local innovations were considered not carry high income gains to government and development agencies;
- (iii) African indigenous innovators lacked organizing frameworks and proper information as to who needs their innovation products, how to find the users of these products outside their communities, when and where to approach them, why they should approach them, and whether the receivers of these

innovation products including government agencies will appreciate the effort;

(iv) Research centres and mass media channels lacked knowledge and awareness about each other's activities with regard to their rural development activities. There was a lot of duplication of efforts. Research managers and scientists perceived radio broadcasters and other mass media as followers of politicians and not as agents for community development. The broadcasters on the other hand, considered researchers to be only academic with insufficient practical information to offer to listeners, especially to farmer innovators.

(v) There was underutilization of local community creative work and indigenous knowledge which could be put in broadcast radio programmes to promote sustainable community livelihood. This includes community storytelling, drama, art work, etc. establishment of local community inventories of agricultural research facilities and rural radio stations; rapid priority-setting methods for research and radio collaboration at all levels;

(vi) Current funding mechanisms of agricultural research and development favoured formal elite organizations. These organizations favoured activities that originated from themselves rather than understanding and supporting the farmer- based and-led initiatives. The resource poor farmers in rural areas could not access the research and development funds because they did not know and could not influence the work of these organisations;

(vii) It was difficult for farmer innovators to gain relevant information or advice from scientists in interpreting farmers' experimental results because the farmers could not bring scientists and radio broadcasters to see local innovations in the field. As a result of these barriers, information on local innovations and products could not spread and stimulate ideas among other farmers.

Conclusion

Using the example of the Mombo division in Tanzania, the chapter demonstrated that there was a lot of innovation work based on indigenous knowledge taking place African rural communities. The information about

these indigenous knowledge and innovation systems was not known and hence needs to be promoted. The broadcast radio was cited as an appropriate tool for disseminating local community innovation systems in the remote rural areas due to its accessibility and affordability. The chapter also revealed a number of issues related to rural community innovation systems and the role of the broadcast radio:

- Extension staff, policy makers and researchers and other development agencies involved in rural development and poverty alleviation, were increasing learning about the importance of promoting local innovations through affordable public communication media such as the broadcast radio;
- Empowering farmers in experimenting with local innovations and publicizing these local innovations provides a faster feedback development strategy with a great potentiality of promoting and improving participatory research and policy design in an iterative cycle;
- Farm visits and feedback workshops involving the farmer innovators, researchers, radio broadcasters and other stakeholders seen to be very effective in sustaining and keeping farmers' interest in developing innovations. It makes the rural innovators feel recognized and acknowledged when their creative work is widely broadcasted through accessible mass media such as the broadcast radio;
- The promotion of innovations based on the participation of the local knowledge producers themselves as well as local investment is an important key to sustainable community livelihood and effective poverty alleviation strategy. The technology and research information arising from such community-based knowledge and innovation systems is affordable, accessible and culturally acceptable.
- Supportive government policies and political willingness contribute to the success of local community innovations for food security and poverty alleviation. It makes farmer innovators feel that the government and other development agencies have interest in their creativity for the benefit of the country as a whole.

The study also highlighted the challenges associated with the linkage between research, broadcast radio and farmers' innovation work. It is on the basis of these prospects and challenges that the following recommendations are made:

- There is a great need to document African indigenous knowledge and innovations in African rural communities, especially in the remote areas, where the majority of people live. This is crucial for rural innovators to share experiences and protect these innovations from exploitation.
- Appropriate policies should be put in place to support these innovations and associated knowledge systems for sustainable development and livelihood.
- There is a need to develop policy strategies and mechanisms including the wide use of affordable mass media in rural communities for promoting new knowledge sharing including new affordable technologies.
- Working groups on indigenous agricultural innovations at the community and national levels should be created. These groups should be responsible for stimulating and creating linkages between different stakeholders at all levels, that is, farmer innovators, agricultural producer organizations, researchers, research institutes, government departments, development agencies, etc.
- Training material which include indigenous farmer innovations to facilitate dialogue between researchers, producers, policy makers and other agencies, should be developed.

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Section Three

Section Three presents African indigenous knowledge and focuses on agriculture and food security, economic enterprises and projects, especially among African rural women, including their challenges and prospects. The Section reveals the following.

First, African women are responsible for community livelihoods in most African countries and are the custodians of indigenous knowledge because they perform most of the agricultural production and processing work. However, their contribution and knowledge are not socially recognized and they are the ones mostly affected by poverty. They are also involved in various economic enterprises based on indigenous knowledge systems to generate income. These initiatives are not adequately documented – especially their challenges and prospects – and contributions acknowledged and used to inform research and policy formulation.

Second, African communities have been able to adapt to different environmental and climatic conditions over the millennia. One strategy used was the selection of plant species which were appropriate to specific environmental conditions. For instance, in arid and semi-arid environments characterized by limited rainfall, African communities cultivated drought resistant crops such as millet, sorghum, cassava, etc. to ensure food security.

Third, the sustainability of indigenous knowledge-based income generating and job creation projects in African local communities is a sustainable rural development challenge in Africa. In order to be sustainable, they must be run according to appropriate management systems. Their sustainability is however often compromised due to a lack of managerial skills; poor commitment of project members due to irregular remuneration; poor financial accountability; and inadequate support from government and other developmental agencies.

This section also reiterates that the contribution of African Indigenous Knowledge to the global pool of knowledge will among other factors be determined by the ability of African research and educational institutions to use Information Communication and Technology to mobilize the rich innovation initiatives existing in African local communities for sustainable development and livelihoods.

African Indigenous Entrepreneurial Activities among Batswana Women



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Focused on Batswana women's indigenous entrepreneurship activities, this study reveals that they use their indigenous knowledge and local resources to engage in various income generating activities. These activities enable them to provide food security, income for other household needs, and education for their dependants. The activities also create job opportunities in the local communities and transfer of knowledge and skills from one generation to another as young people participate in these activities either as relatives or employees. Taking into consideration the scarcity of publications on this subject, the chapter makes an important contribution to this deficit. It could be used by policy makers and development agencies as it shows the importance of promoting women entrepreneurship based in local knowledge systems and resources at community level.

Keywords: Indigenous entrepreneur activities, Batswana women, North-West province

Introduction

The inability of Africa's economies to turn the tide of under-development, that is, low food production levels, balance of payment difficulties, inflation,

rapid population growth, low or negative GDP growth rates, high cost of borrowing declines in social services and standards etc., have brought to the fore discussions on the role of local-based knowledge and innovation systems, women entrepreneurs and the development of the informal productive sector in Africa. Welch (2008) adds that entrepreneurship in all its diversity in Africa provides a dynamic and potentially efficient means of meeting many of the emerging challenges of the development in the continent (cf. Quachey 2005).

In her Keynote Speech on: Millennium Development Goals and African Women Entrepreneurs in Africa: at a public meeting of African And International Experts Meeting With Dutch Audience To Discuss The Millennium Goals, Leiden, Netherlands, 8-12 November, 2005, Quachey (2005), argued that the inability of African economies to turn the tide of underdevelopment, that is, low food production levels, balance of payment difficulties, inflation, rapid population growth, low or negative GDP growth rates, high cost of borrowing declines in social services and standards, etc. have brought to the fore discussions on the role of African women entrepreneurs and the development of the informal productive sector in Africa. Lately, attention has begun to fall on the use and benefits of alternative approaches to development. It is this new policy setting that brings about the need to explore the potential contribution of African women entrepreneurs in the informal sector to Africa's economic recovery and development. Entrepreneurship in all its diversity in Africa provides a dynamic and potentially efficient means of meeting many of the emerging challenges of the development and debt crisis in Africa. However Entrepreneurship in the African context remains concerned with the graduation of informal sector ventures with a realistic business prospectus to better established and endowed enterprise, as well as promotion of economic diversification, export to niche market, future growth and higher living standards.

Welch (2008) adds that a number of United Nations Resolutions have stressed the importance of developing indigenous entrepreneurial capabilities as a means of accelerating recovery and sustaining development. The Arusha and Nairobi Forward looking Strategies for the Advancement of Women as well as the Abuja Declaration of Participatory Development (which defined the role of Women in Africa in the 1990s), have also emphasized the importance of enhancing the capacities of African Women entrepreneurs as

means of increasing their contribution to economic recovery and sustainable development. These strategies urgently demand that concrete efforts be made by African Women entrepreneurs to develop stronger links between Women entrepreneurs in all African countries at all levels to strengthen women's capabilities to deal and cope with the increasing challenges of the global market in order to increase market share and eradicate acute poverty amongst women (cf. Quachey 2005).

On the role of indigenous knowledge in African women entrepreneurship, the World Bank (2004) argues that the gendered nature of IK in the development process of Africa is often overlooked, marginalized or neglected. This is based on the observation that a little over half the world's population are women, whose roles, responsibilities and potential contribution to the families and communities place them at the centre of locally-manageable, cost-effective and sustainable development. They are involved in large numbers in agriculture, food security and traditional medicine all over the world. Yet, most development initiatives are still largely geared towards men, and women remain an overwhelming proportion of the poor.

However, there is also increasing realization on the contribution of women using local knowledge in the development process in the continent. For instance, Burns (2007) states that community-based enterprises which use indigenous knowledge and innovation systems including local resources play a key role in promoting economic growth and equitable development in developing countries including in Africa.

According to Hope (2001) the promotion of the potential of economic sectors based on indigenous knowledge, innovations and resources as engines for growth, is a major characteristic of Small and Medium Enterprises (SMEs) in most African countries including South Africa.

Indigenous Knowledge refers to the knowledge that grows within a social group or community, incorporating learning from own experience over generations but also knowledge gained from other sources and fully internalized within local ways of thinking and doing. Community or local innovation on the other hand, is the process through which individuals or groups discover or develop new and better ways of managing resources including building on and expanding the boundaries of their IKS (Wava and Knowles, 1998).

Ember (2004) indicates that the emergence of women entrepreneurs and their contribution to the national economies of Africa is quite visible. The number of African women entrepreneurs has grown over a period of time, especially in the 1990s. African women entrepreneurs need to be lauded for their increased utilization and interfacing of both indigenous and modern technologies in their various business investments. They are transferring knowledge and skills to others including creation of jobs in their local communities.

Gartner (2000) adds that while African women entrepreneurs using local knowledge and resources have demonstrated their potential, the fact remains that they are capable of contributing much more than what they already are. African Women's entrepreneurship needs to be studied separately for two main reasons: The first reason is that African women's entrepreneurship has been recognized during the last decade as an important untapped source of economic growth and sustainable community livelihood. African women entrepreneurs create new jobs for themselves and others and also by being different. They also provide the society with different solutions to management, organization and business problems as well as to the exploitation of entrepreneurial opportunities. The second reason is that the topic of African women in entrepreneurship has been largely neglected both in society in general and in the social sciences. Not only have African women lower participation rates in entrepreneurship than men but they also generally choose to start and manage business activities in different sectors than men tend to do.

Fazle (2006) emphasizes the importance of developing and utilizing local resources in business development by stating that African entrepreneurs, both men and women in African communities should develop and make the most of their natural resources and opportunities. They should develop and promote these resources in such a way that their efficient utilization will boost entrepreneurial opportunities within the respective communities. They should also be inventive enough to convert the available community resources into great business opportunities for the benefit of the communities and the country as a whole.

In most of the Southern African Development Community (SADC) countries including South Africa, SMEs constitute an umbrella term for enterprises with less than 250 employees (McDade and Spring, 2005). Jalbert (2000) shows that a prominent feature of the SMEs sector in Africa and the

Southern African Development Community (SADC) region in particular, is the heavy presence of African indigenous women. These women who live in both rural and urban areas are the backbone of the survival of their poor households in terms of food security and income generation. Most of them are unemployed due to limited job opportunities and their lack of formal education and skills.

Therefore, they take advantage of the local based knowledge systems and resources to establish various types of business activities to support themselves and their households. These business activities include beer brewing from sorghum or maize, fruit and vegetable gardens for sale, baking, etc. International Labour Organization (ILO), (2000) indicate that most of the local knowledge and skill these women use in their businesses are learnt from their parents or relatives or as employees of existing community-based enterprises. They also transfer them to their children and relatives or other young employees from within and outside the community. However, in spite of such an important presence in the economy, their contribution is invisible in the socio-economic literature of the region (OECD, 2004).

In her discussion of the challenges facing African women entrepreneurs in Africa, Kibas (2005) argues that women “being the backbone of rural economies in Southern Africa and Africa at large play a significant role to ensure their families’ well-being. This is seen in terms of providing food, shelter, health and education for the children. Being the majority (about 55%) of the rural population, their role is crucial in bringing about change in their communities. Most of the rural women using local knowledge systems provide for their families through subsistence farming and other agricultural activities supplemented by petty trade or micro enterprises” (cf. *Challenges Facing Women Entrepreneurs* n.d.).

“Agriculture, which is practiced mainly for home use, takes various forms such as keeping chicken, growing vegetables, tending the family garden and small-scale horticulture for the market place, among others. A few women keep livestock as part of the family assets as well as savings”. As in other African countries the “majority of these women are engaged in these activities out of necessity given that they have limited choices outside their traditional roles. Most have hardly gone beyond primary education and have very limited or no training. As regards marital status, most are married and have families. A number of them have absentee husbands, who often work far away from their homes while the rest are either single mothers, separated

or widows. Due to the many challenges they face in providing for their families, most of them are now engaged in income generation activities in form of micro enterprises” (cf. Challenges Facing Women Entrepreneurs n.d.; cf. Richardson, Howarth and Finnegan, 2004).

“Many challenges face rural entrepreneurs. They include: competition from well-established male-dominated enterprises, lack of accurate information, support, finance for expansion, risk-taking propensity, domestic commitments, and stereotyping among others. Competition (markets) and information related factors are said to be major challenges. Competition is seen in form of the size of market share in the rural setting. Most of these markets are not expanding and new competitors such as mini-super markets with wide varieties of products for those who were engaged in selling household products are emerging” (cf. Challenges Facing Women Entrepreneurs n.d.; cf. also Bennet, 1992).

“Lack of accurate information on the new markets and market segments, and the ever increasing demands by clients for variety pose challenges to the rural entrepreneur. This, coupled with lack of knowledge on business management, inadequate resources and support mechanisms from spouses are adverse limitations” (cf. Challenges Facing Women Entrepreneurs n.d.).

“The other challenges affecting the success of rural micro-enterprises include: need for effective communication to negotiate/bargain favourably, management of debtors, proper record keeping and issues to do with domestic matters such as balancing a woman’s role in the home and the enterprise expectations” (cf. Challenges Facing Women Entrepreneurs n.d.).

“The experiences the African women entrepreneurs have in running their businesses include such problems as lack of enough capital, difficulties in transportation and marketing, the perishability of some commodities and competing demand related to household chores. They encounter difficulties in licensing procedures and other such constraints. Most women who venture into businesses in the rural areas and need financing lack the needed collateral to enable them secure bank loans. Responsibility of entrepreneurs for dependants has limited opportunities to make savings or undertake business expansion and diversification. Entrepreneurship always involves some level of risk taking. For women in the rural areas, gender stereotyped perception of self, lack of confidence and assertiveness appear to be major barriers. The fear to risk is a big hindrance” (cf. Challenges Facing Women

Entrepreneurs n.d.; Cf also Logan, 1993; Olson and Currie, 1992; Ahooja-Patel, 1992).

Kirzner (2002) observed that African women in various provinces of South Africa including the North-West province are engaged in various productive ventures which contribute to economic growth and community livelihood. In his study of the role of Indigenous Knowledge Systems in poverty alleviation in the North-West province, Gaborone (2009) reveals that 86% of the population of the North-West province is Tswana speaking and the majority, (58 %) are women. He describes them as an African indigenous people whose ancestors inhabited the Southern Africa region prior to European colonization. Their main socio-economic activity is agriculture, both crop and animal production. Most of the SMEs established by these women as part of their income generation are linked to agriculture. These activities include sorghum beer brewing, maize bread baking, indigenous vegetable gardens, etc. (Karnani, 2007; Brush and Carter, 2006; Low and MacMillan, 1988).

However, McDade and Spring (2005) state that most of the enterprises run by African women entrepreneurs in South Africa tend to cluster around small-scale or micro enterprises in agricultural crop processing, trade and services. Gaborone (2009) and Dzisi (2008) use economic models of entrepreneurship developed by Schumpeter (1934) and Kirzner (2002) to explain the nature of business ventures established by Batswana women in the North-West province. Both describe the entrepreneur as the innovator who introduces something new and profitable into an economy. This is elaborated by studies done by Coughlin (2002) which explains the success of a business on the basis of its financial performance whose indicators include the growth rate, business size, turnover, profitability and the number of people employed (cf. *Entrepreneurial Activities of Indigenous African Women* 2005).

However, recent studies such as ILO (2008), Welch (2008) and Jennings (2007) have revealed that women entrepreneurs may be less concerned with financial rewards than their male counterparts. Indeed, there is consensus among these research studies that women measure their success by their level of self-fulfilment and personal achievement. In this chapter, the concept of success will be discussed in terms of what it means to the Batswana women entrepreneurs themselves (cf. *Entrepreneurial Activities of Indigenous African Women* 2005).

The objectives of the chapter are to analyse the following aspects: the demographic profile of the Batswana women entrepreneurs; the types of businesses established by the Batswana women entrepreneurs and their own interpretation of success.

Methodology

The study followed a case study approach in order to have an in-depth understanding of the research problem. Holetzky and Wynn (2009) elaborate that the study of a person, a small group, a single situation, or a specific “case”, is called a case study. It involves extensive research, including documented evidence of a particular issue or situation -- symptoms, reactions, effects of certain stimuli, and the conclusion reached following the study.

The target population was the Batswana women entrepreneurs in the North-West province. The North West province has four district municipalities, i.e. Bojanala Platinum, Dr. Ruth Segomotsi Mompati, Ngaka Modiri Molema and Dr Kenneth Kaunda. In consultation and collaboration with key persons and organizations in the district municipalities such as municipal managers, councillors, traditional authorities, the leaders of the North-West Provincial African Chamber of Commerce, a total of 120 randomly selected Batswana women entrepreneurs from the four District Municipalities using indigenous knowledge and local resources were identified and participated in a questionnaire survey. Taking into consideration the importance of local languages in indigenous knowledge studies, the study was conducted in the local Setswana language. This provided the informants with an opportunity to express their views in their own local language.

Therefore, using face-to-face interviews, 20 Batswana women entrepreneurs were purposely selected to share their views and experiences on running indigenous knowledge-based enterprises. This was helpful in understanding their views with regard to the types of business ventures undertaken, their own understanding of success in a business activity; and the contribution of these activities for their lives and households including local communities.

Whiting (1999) defines an interview as a conversation between two people (the interviewer and the interviewee) where questions are asked by

the interviewer to obtain information from the interviewee. World Health Organization (WHO) (1998) elaborates that the qualitative research interview seeks to describe the meanings of central themes in the life world of the subjects. The main task in interviewing is to understand the meaning of what the interviewees say. Qualitative research interview seeks to cover both a factual and a meaning level, though it is usually more difficult to interview on a meaning level. Interviews are particularly useful for getting the story behind a participant's experiences. The interviewer can pursue in-depth information around the topic. Interviews may be useful as follow-up to certain respondents to questionnaires, for example, to further investigate their responses

Qualitative data in the form of audio taped interviews were transcribed and translated from Setswana into English and analysed on the basis of content. Zelditch (1992) defines content analysis as a set of procedures for collecting and organizing non-structured information into a standardized format that allows one to make inferences about the characteristics and meaning of written and otherwise recorded material.

Web and Ladipo (1991) elaborate further by stating that it is a method of analysis by which a researcher seeks to determine the manifest content of written, spoken or published texts by systematic, objective and quantitative assessments of units of analysis. Researchers typically prepare and apply a coding scheme when conducting content analysis.

Quantitative data in the form of questionnaires were checked and coded. Data was analysed using SPSS/PC+. Validation checks were conducted through all phases of the research to ensure the highest level of data accuracy.

Results and Discussion

The sample of questions (closed and open ended) posed to the informants included the following:

- What is your age range : 30-39; 40-49; 50-59; 60 and above
- What type of business activity are you doing in the community?
- Where did you learn the skills for establishing and running your business?

- Where do you get the materials you need for your business activities?
- What is your own understanding of success in a business activity?

1. The Demographic Profile of the Batswana Women Entrepreneurs

On the basis of the research results, the chapter discusses the demographic profile of the respondent Batswana women entrepreneurs. The majority of the respondents (65 per cent) were in the age group 40 and 49 years of age. The findings further revealed that 70 per cent of them were heads of households with 4 or more dependants. On the issue of educational level, the majority of them (more than 60%) had primary education. Only 15% had secondary school education, polytechnic qualification or university education. The majority of the respondents (more than 50%) indicated that their level of formal education has been a useful factor in the successful creation and operation of their business.

In addition to the local knowledge and experiences gained through participating in various community activities related to the businesses they were doing, the knowledge and skills obtained from formal education was helpful to them in the areas of literacy, bookkeeping and the ability to prepare basic financial statements. Apart from a few respondents who had vocational and polytechnic education in specialized areas such as catering, marketing and accounting, most of the respondents had not obtained any specialized knowledge in any field during their formal education. The knowledge and skills they used were obtained in participating in family businesses or as employees in the community (cf. *Entrepreneurial Activities of Indigenous African Women* 2005).

2. Types of Businesses Established by the Batswana Women Entrepreneurs

In this section the chapter discusses the types of indigenous business activities established by the respondent Batswana women entrepreneurs. The percentage distribution of the respondent women entrepreneurs was as follows: sorghum beer-brewing (35%); food stores (25%); indigenous food crop processing (20%); maize bread baking (10%) and indigenous vegetable

selling (10%). The study revealed that 68% of the respondents established most of their businesses anew, while the rest (32%) had taken over the businesses created by parents and other relatives.

The respondents were asked to indicate the number of employees who worked in their businesses. More than 62 per cent had at least 2 people working in the business doing various kinds of activities related to the business activity. In case of vegetable gardens, they were involved in preparing the field, planting, harvesting, transportation and selling.

3. The Interpretation of Success among the Batswana Women Entrepreneurs

The study wanted to establish the respondent women entrepreneurs' understanding of success in business. Using a questionnaire in which the respondents were allowed to indicate more than one interpretation of success, the following results were reflected: 86% attributed the meaning of success to self-fulfilment and accomplishment; 62% to financial success and family security; 57% to contribution to the well-being of their communities. More than 60% of the respondents agreed that they had achieved self-fulfilment through entrepreneurship. They elaborated this by indicated that the business enabled them to support their households and relatives with expenses such as school fees, health expenses, food and other needs. 25% the respondents revealed that the business enabled them to acquire property such as real estate (such as houses and business premises) and buy vehicles.

62% of the respondents indicated that another positive aspect was that the young people, both male and female were able to learn business and production skills such as beer brewing, baking, vegetable and fruit processing including marketing, by participating in these businesses as employees or members of the households. This implies that these women entrepreneurs were contributing to skill and knowledge transfer.

Challenges Facing Batswana Women Entrepreneurs

When asked about the challenges they encounter in their business activities, more than 70 per cent of the respondents expressed the following: lack of enough capital, difficulties in transportation and marketing, the perishability

of some commodities, competing demand related to household chores, difficulties in licensing procedures and other such constraints. Focus group discussion with groups of 5-10 women revealed that most women who venture into businesses in the rural areas and need financing lack the needed collateral to enable them secure bank loans. Responsibility of these women entrepreneurs for dependants created limited opportunities to make savings or undertake business expansion and diversification. Moreover, entrepreneurship “always involves some level of risk taking. For women in the rural areas, gender stereotyped perception of self, lack of confidence and assertiveness appear to be major barriers. The fear to risk is a big hindrance” (cf. *Challenges Facing Women Entrepreneurs n.d.*).

Conclusion

This chapter has shown that indigenous knowledge is an important resource for local survival in African local communities. The Batswana women in the study used local knowledge and resources to establish business activities including beer brewing using local sorghum, bread baking, selling of indigenous vegetables and fruits, etc. which contributed to the survival of their respective households. The activities enabled them to create job opportunities in the community, provide food security and generate income for other household needs including education for their dependants. There was also skill and knowledge transfer from one generation to the other as young people participated in these activities as relatives or employees on the women entrepreneurs. The chapter will contribute greatly to the literature on African indigenous knowledge and women entrepreneurship in South Africa and Africa at large. Literature review showed that there is scarcity of publications on this subject. The chapter will also be useful for policy makers and development agencies because it shows the importance of promoting entrepreneurship based on local knowledge systems and resources in terms of job creation, income generation, skill transfer and gender equity at community level. Most of the local community-based activities in South Africa, especially in the rural areas are done by women.

This calls for more research on indigenous entrepreneurship and gender studies and urges government. Further, the study showed that to fight poverty in South Africa and Africa in general, the pivotal place of women in society (specifically in rural areas) needs to be accepted and supported.

African women entrepreneurs in the rural areas faced a number of challenges. They need capacity building and training in functional areas such as finance, literacy skills, marketing, production and managerial skills. A mind shift among their spouses (and the men in general) should also be encouraged so that they give full support besides embracing the changing role of women in the homes.

Married women should be given support by their spouse in respect of finances, motivational encouragement, advice and actual involvement in the running of business. Access to credit by women entrepreneurs at the level of micro and small-scale enterprises, should be facilitated through innovative programs and financing arrangements that go beyond the conventional approaches; which require collateral and capital among other conditionalities.

The public sector and formal financial organizations should be sensitized on the value of gender-balanced participation in the informal sector enterprises. A major goal should be to promote the social and economic empowerment of women, as they constitute a vulnerable social category that is critical in sustainable development endeavours.

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Sustainability of Indigenous Knowledge-based Vegetable Garden Projects for Poverty Alleviation: Challenges and Prospects

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Deriving from a study amongst inhabitants of Lekgophung village in the North-West province, this case study investigates the challenges and prospects of sustainability of indigenous knowledge-based vegetable garden projects. The projects were initiated by rural women, using their local knowledge of farming and indigenous plants to alleviate their poverty. The study found that the sustainability of the projects are being hampered by a number of drawbacks, such as a lack of project managerial skills; limited participation of the community youth; lack of commitment of project members due to irregular remuneration; problems related to financial accountability; rampant theft; and a lack of sustainable support by government and other developmental agencies. It recommends the cooperation, coordination and the sharing of experiences and scarce resources, amongst others, by members participating in similar projects.

Keywords: poverty alleviation, sustainability, Lekgophung community, indigenous vegetable garden project, North-West province

1. Introduction

Safara (2005) argues that Africa in order to promote sustainable development and eradicate poverty Africa needs to build on its strengths. She elaborates

that should involve the remobilization of its abundant indigenous knowledge systems which combine local skills, practices, technologies and various systems of community innovation that have been developed and natured through generations and which enable communities to survive over time. Wilson (2004) emphasizes the role of African women in this endeavour as the custodians of these local knowledge systems and practices.

A large proportion of the community activities and practices in African communities related to food security, health, natural resource management, natural disaster management (drought, famine, floods, etc.) are performed by women. In spite of this, they are the ones most affected by poverty. She elaborates that when governments and development agencies in Africa talk about food insecurity, unemployment and massive poverty in both rural and urban area women are the most affected.

There is increasing realization among development agencies on the importance of indigenous knowledge and the role of women in poverty alleviation (Saguti, 2006). For instance, since its creation in 1945, Food and Agricultural Organization (FAO) has recognized the significant contributions these make to food and agriculture, and the relevance of on-farm/in situ and ex situ conservation of genetic resources for food and agriculture. Over the decades, FAO has included local knowledge and activities in policies, programmes and projects related to a wide range of issues, including farmers' rights, poverty alleviation, nutrition and health, and gender equity, among many others.

The organization is also working with various government institutions in developing countries including Africa countries to support various poverty alleviation strategies in areas of food security. It is also promoting international and interdisciplinary collaboration to strengthen the interface between traditional knowledge and cutting-edge science and technology, to help maintain and enhance the world's food and agricultural diversity and sustainability (FAO, 2004).

For instance, The North-West Provincial Growth and Development Strategy (2004) is one of the most important provincial action programme strategies to achieve economic growth and poverty reduction in the province. The tasks and objectives contained in this provincial poverty reduction and growth strategy not only call for targeted measures, including poverty alleviation programmes and projects, to support specific poverty groups, but also see linkages within the matrix of policies that range from

macroeconomic policies, sectoral development policies and measures, to social welfare policies of all sectors and levels that must work in tandem to ensure sustainable development in the province. Its major concrete objectives are to: promote rapid and sustainable economic growth coupled with attainment of social progress and equity, aimed at improving the material conditions and quality of life of all population strata in both rural and urban areas; maintain rapid development of the dynamic areas and create favorable conditions for them to achieve high economic growth rates. At the same time, concentrate on developing agriculture and rural areas, ensure food security, create jobs, and increase rural income

Sarafa (2005) and Milwood (1996) indicate that besides the government efforts to fight poverty in the poor communities, women in most African local communities in South Africa are using their indigenous knowledge to initiate various community-based poverty alleviation projects such as vegetable gardens, food processing, etc. to mitigate against their poverty situation. A number of these projects have been initiated in various local communities in the North-West province (South Africa), by either the local communities themselves or in collaboration with governmental or non-governmental development agencies. One of these projects is the Lekgophung Indigenous Knowledge-based Women Vegetable Garden project in the Ramotshere Moloia Local Municipality of the Central District (North-West province). The Lekgophung Village community is characterized by high levels of unemployment, especially among the youth and women. The North-West Provincial Department of Social Development (2005) indicates that more than 80 percent of the households in the village are female-headed. Majority of them (96%) are unemployed with no regular sources of income.

It was on the basis of the above background, that the Provincial Department of Agriculture, Environment and Conservation in collaboration with the Lekgophung Village community initiated the Lekgophung Indigenous Women Vegetable Garden project for poverty alleviation.

However, Wilson (2004) expresses the concern that most of these projects tend to experience the problem of sustainability. She defines sustainability of a project as a process that enables a project to be prolonged over many generations rather than over a few years. Robinson (2005) stipulates different factors which have contributed to the lack of sustainability of various community-based poverty alleviation projects in

Africa including South Africa. These include the lack of capacity in trained human resource, the lack of regular remuneration of project members, inadequate government and other developmental agencies support, lack of financial accountability, rampant theft of project facilities and produce and lack of commitment on the part of the project members.

This chapter uses the Lekgophung community women indigenous vegetable garden project as a case study to illustrate the prospects and challenges facing the sustainability of these poverty alleviation projects. At the time of the research study there were only 6 of the original project members (20). The rest had left the project because it was not sustainable and did not fulfil their aspirations of poverty alleviation in terms of regular income. The following aspects are discussed: the socio-economic and demographic characteristics of the project members; factors which contributed to lack of sustainability of the project; and lessons and suggestions for future improvement.

2. Methodology

The study took a case study and participatory approach in order to have an in-depth understanding of the research problem. Conrad (2002) and Nachmias and Nachmias (1992) define a case study as a careful study of some social unit that attempts to determine what factors led to its success or failure. Park (2006) defines participatory research as a research activity in which ordinary people address common needs arising in their daily lives and, in the process generate knowledge. According to him participatory research differs from basic and applied social science research in terms of people's involvement in the research process, integration of action with research and the practice-based nature of the knowledge that is entailed. It sets itself apart even from other forms of action-oriented research because of the central role that the community practitioners play. Participatory action-minded researchers with technical background often get involved in this process but as mainly facilitators. Therefore, qualitative research methods such as key informant interviews, focus group discussions and participant observations formed the core of the data collection methods.

Dooley (2001) defines qualitative research as concerned with non-statistical methods of inquiry and analysis of social phenomena. It draws on an inductive process in which themes and categories emerge through analysis

of data collected by such techniques as interviews, observations, videotapes, and case studies. Samples are usually small and are often purposively selected. Qualitative research uses detailed descriptions from the perspective of the research participants themselves as a means of examining specific issues and problems under study.

A purposive sample of community members participated in the project including project members. After the sampling process, a questionnaire was administered to the research sample in an effort to collect supportive qualitative and quantitative data. Qualitative methods are frequently used in conjunction with quantitative methods to give an overall representation of behaviour within a particular population. After data from both methods were collected, the results were triangulated for a comprehensive understanding of the research problem (cf. Ntsoane 2005; Bowles and Klein, 2003).

Key informants such as community and project leaders, community development workers, etc. were interviewed at all levels of the research project as a means to gain in-depth qualitative information. This approach is a traditional method used by social scientists including anthropologists, for extracting community knowledge through well-placed individuals in the study community. It is part of the ethnographic approach, often being used in situations where access to official records or data is weak or non-existent. Where official records exist, it is used as a means to gain further insight by questioning key people about a specific social problem (cf. Ntsoane 2005).

Focus group discussions were conducted with randomly selected group of 6-10 community members including project members. A focus group discussion is a semi-structured interview in which the discussant knows in advance the topics to be covered. The people included were known to have been involved in specific experiences related to the research problem. Focus group discussions are different from other types of group interviews in that they focus on a particular topic and they rely on group dynamics in order to generate data. The interaction is mainly between group members themselves and not between the members of the group and the interviewer. Group interaction is used in this type of research to generate data and as a source of data analysis. The assumption is that there is an interaction that is productive in widening the range of responses, in activating forgotten details of community or cultural experience/knowledge and in releasing inhibitions that are part and parcel of interviews with individuals (cf. Ntsoane 2005).

Qualitative data in the form of audio taped interviews were transcribed and translated from Setswana into English. Interview and participant observation notes were typed and a content analysis conducted. Alreck and Settle (1994) explain content analysis as a method for summarizing any form of content by counting various aspects of the content. This enables a more objective evaluation than comparing content based on the impressions of a listener. Quantitative data in the form of questionnaires were checked and coded. Data was analysed using SPSS/PC+ (Agresti and Finlay, 1996). Validation checks were conducted through all phases of the research to ensure the highest level of data accuracy.

The following sections present and discuss the research findings.

3. Research Findings and Discussion

The respondent community and project members were asked through a questionnaire, face-to-face interviews and focus group discussions to indicate the following: age group, marital status, household sizes, educational levels, etc.; problems facing the sustainability of the project; and their own suggestions to mitigate against these problems. The results are discussed in detail in the following sections.

3.1 The Socio-Economic and Demographic Characteristics of the Project Members

The study revealed that more than 60% of the households in the Lekgophung village community was female headed. All the original project members were women including the remaining project members. Focus group discussions with the respondent community members including project members showed that the project was more appealing to women than men. Men usually preferred to work in employed jobs and earn wages, rather than running vegetable gardens.

Furthermore, as breadwinners, men were expected to provide for their families on a regular basis. The uncertainties of the poverty alleviation projects such as the community vegetable garden, in terms of income, made men lose interest in participating in such projects. Women, who were the main heads of households in the community, were interested in the vegetable garden project because it provided them with a cheap and easily accessible

source of food and nutrition for the household. It reduced the costs of traveling to urban areas such as Zeerust to buy such vegetables.

- **Marital Status of Project Members**

As a result of the high level of unemployment in the study community, most men left the village to look for employment opportunities in the mines, industrial areas, commercial farms, urban centre, etc. within and outside the North-West Province. Hence women were left at home to take care of the households. The study found that the largest proportion (74%) of the project participants were married women. Interviews with the respondent community members and focus group discussions revealed that the project was more appealing to married women than to both single and widowed women. Most married women were not employed; hence they had enough time to participate in such community projects.

Furthermore, besides the money they received from their husbands, some of the married women felt that there was a need to augment their husbands' income by other means including participating in poverty alleviation projects such as community vegetable gardens. It was stated in the focus group discussions that most single and widowed women preferred wage employment where they earned a regular income because they had no husbands to depend on. Some of them worked as domestic workers in various neighbouring commercial farms and other rich households in the village and neighbouring areas.

- **Age Distribution of the Project Members**

World Bank (2004) states that most young people in the rural communities of most African countries including South Africa, tend to migrate to urban areas in search of better conditions of living than those found in the rural areas. The study was therefore interested in establishing the age distribution of the project members. It was found that the majority (64%) of the project members were over 35 years of age. There were no participants below the age of 25 years. Focus group discussions with community members showed that poverty alleviation projects such as community vegetable gardens were not appealing to most young people. They preferred to go to urban areas to look for salaried jobs. They did not see any prospects of making a decent life

from such projects. Moreover, the increasing decline in the production and income from the garden project discouraged most young people from participating in the project activities.

- **Household Sizes of Project Members**

The size of the households, especially the number of dependants with no regular income tends to have an impact on the welfare of the household, especially in situation where there is only one bread winner or there is no regular household income. The study found that the majority (72%) of the project members, who were heads of households, had 3 or more dependants. Interviews with the respondent project participants and information from focus group discussions showed that most heads of households who participated in the project were those who had many dependents to support. They argued that the responsibility of supporting the household should not rest with the fathers only. The fathers were most of the time away from home and some did not send regular financial support to their families at home. Therefore, if an opportunity arose to augment the household income such as the community vegetable garden project, the mothers who were de facto heads of household participated in such projects. This was due to the fact that in spite of its various problems of sustainability, the community vegetable project provided the members with vegetables at a cheaper price than traveling to distant urban places to buy such vegetables.

- **Educational and Skill Levels**

Education and training are important investments for the individual community member, community and the national economy as a whole. Education and skills development for participants in poverty alleviation projects and the country's labour force in general is important for several reasons: First, technological change and the increased competition flowing from trade liberalization require higher skills and productivity among workers, both in rural and urban areas. Skilled workers are more readily able to adapt existing knowledge and processes.

Growing, competitive economies benefit from their presence and their movement to more productive employment. Second, investing in the productivity and skills of people raises the incomes of economically vulnerable groups, thereby reducing poverty. Third, skills development has

also become more important and difficult as health issues intensify. In particular, HIV/AIDS is depleting scarce human capital in the country and in local communities and magnifies the need to replace skills lost across a wide range of occupations and economic activities (World Bank, 2004).

Furthermore, education and training are important aspects in the sustainability of community-based poverty alleviation projects because they contribute to the level of understanding and appreciating the commitment to the success of such poverty alleviation community-based projects.

The research study was therefore interested in establishing the distribution of the levels of education of the project members. It was found that 75% of the project participants had educational levels below standard eight. Only 1% of them had education level above grade 12. Interviews and focus group discussions with community members including the project participants showed that the low levels of education among the project participants was a problem for the sustainability of the project. The efficient management, especially financial accountability of the project requires people who had knowledge and skills of project management, especially financial management.

More than 80% of the respondent project members agreed that the level of education and skills of the project members was a problem in the management of the project and its sustainability because the leadership and members in general had problems in understanding project development issues. The project was managed by people who lacked such important project management knowledge and skills. This led to the problem of lack of finance, which affected the morale and commitment of the project members to the project activities.

3.2 Problems Facing the Sustainability of the Project

- **Lack of Capacity in Trained Human Resource**

The previous section has already indicated that the low level of education and skills among the project members and leaders affected the sustainability of the project. For instance, the study found that 97% of the project members including the leadership had never been involved in any form of capacity building skill training course for the development of the project.

- **Lack of Regular Remuneration of Participants**

Brown (2001) states that in order for project members to be motivated and committed to any community-based project; they must see the benefit of that project to their daily lives. This is due to the fact that they joined the project with the expectations of improving their lives. The majority (97%) of the project participants in the study complained that they were not regularly remunerated. Remuneration was given to members only when there was enough profit above the project costs. As a result of poor management, the project did not generate enough regular income. This discouraged members' commitment to the project activities. Seventy eight (78%) of the project members rated the project members' support for the project as very poor because the e benefits of the project to their lives were uncertain.

- **Lack of Sustainable Support and Commitment from Government and Other Development Agencies**

On the issue of project support from government and other development agencies, 65% of the project members rated it as very poor. According to them, the support that was required from government and other development agencies was in terms of infrastructural, training and financial services. According to the project members, lack of sustainable government support and commitment, at all government levels (national, provincial and local), demoralized project members, made some to leave the project and discouraged other community members from joining the project. It was argued that since the provincial government stopped funding the project, members had been struggling over the years to make the project survive.

The respondent community members including project members argued that all provincial government departments, should be involved in supporting community-based poverty alleviation projects including promotion of the local knowledge systems on which the people, especially women depended on for survival.. This is due to the fact that the sustainability of the projects needed a holistic approach, whereby all sectors of society including education, finance, etc. should be involved in their development and success. Currently, the support from outside the community was practically absent. The community members felt that government was not committed to such local community-based poverty alleviation projects, especially those run by women.

- **Lack of Financial Accountability**

Complaint about lack of financial accountability for the project was a common problem articulated by the majority of the project members. More than 60% of the project members indicated that the project encountered problems of financial accountability which impacted on its sustainability. Information from focus group discussions showed that project products were sold but there was no proper explanation as to how and where the income was spent. There was no regular remuneration for the members. They called for financial management training for both the leadership and members to improve accountability. If the project was to be sustainable and fulfill the expectations of its members, all the project members should know and have the skills on how to handle, monitor and account for project money.

- **The Problem of Theft**

Another common problem indicated by the project members was theft. The project members expressed the concern about the problem of theft of garden equipment and vegetable produce. They complained that theft was so rampant that it threatened the sustainability of the project. This was due to lack of proper security for the vegetable garden project. This was partly attributed to lack of members' commitment to the project. Only 9 % of the project members indicated being seriously committed to the project. Sixty seven percent (67%) of the respondent project members stated that they were not seriously committed to the project because it did not satisfy their life needs and expectations in terms of poverty alleviation such as food security, employment and regular income. They argued that if the project was well managed it could provide job and income opportunities for the members.

3.3 Suggestions for Future Improvement

The research findings show that the sustainability of the Lekkophung community women vegetable garden project for poverty alleviation was limited by a number of factors including lack of capacity in trained human resource, the problem of remuneration of participants, lack of sustainable support and commitment by government and other developmental agencies, problems of financial accountability and problem of theft. It is on the basis of these findings that the following suggestions were made for future improvement:

(a) Develop Incentive Strategies for Increasing Youth Participation

The youth, especially women, form part of the major social groups affected by poverty and unemployment in the Lekgophung village community and the North-West Province at large. In most community-based poverty alleviation projects such as community gardens, the people involved are mostly the elderly. For instance, the main participants in the Lekgophung community vegetable garden project were elderly women above 35 years of age. This indicates that the current projects were not appealing to the youth. These elderly women did not have financial resources but depended on their local knowledge of farming and local plants to initiate poverty alleviation projects. The sustainability of this indigenous knowledge and skills depended on the young people participating actively in the activities of the elderly.

There is need, therefore, for the community leaders and other stakeholders to develop incentive strategies to encourage young people below 30 years of age to participate in community-based poverty alleviation projects such as community vegetable gardens. As some of the members indicated, if the community projects were well managed, including proper financial accountability, they could be a great source of employment and income generations for all sectors of society including the youth. The sustainability of these projects will very much depend on the active participation of the youth, both male and female. Therefore, government and other development agencies should collaborate with community leaders to ensure that the projects are well managed and capacitated in terms of the necessary infrastructure, financial resources and skilled human resource training for all project members.

(b) A Holistic Approach to Human Resource Capacity Building

Human resource capacity building in the form of training in relevant knowledge and skills for project sustainability is a key component of promoting project sustainability. However, the issue of training both project leaders and project members is very significant for a holistic human resource capacity building approach. This is due to the fact that the two have been accustomed to different perception of project implementation approaches. Leaders are used to giving orders and the members to receiving orders, which they either passively obey or show indifference to. Community-based projects which involve community members' participation, require that those who are given leadership positions are trained and exposed to the concept of

collective leadership; including conducting meetings democratically, ensuring transparency and accountability to the project members. This is only possible if they are themselves confident that they can handle situations in their respective localities and projects.

Fortman (1999) argues that leaders resort to dictatorial tactics because they feel insecure. One source of insecurity is when one is not sure of what he/she is supposed to do or whether he/ she are doing it in the right way. However, many development projects have training components but these are normally exclusively for those occupying leadership positions. Unfortunately, the more training the leaders get without corresponding training for members, the wide is the gap between them.

As a result the leaders and the led develop different perceptions concerning the project. This creates a bipolar situation of those who know, therefore, must lead, and those who do not know, hence should be led. Under such circumstances, those who lead tend to develop a sense of arrogance and paternalism. The gap might become so wide that the leadership feels isolated and the members alienated. The tendency then is for the leadership to become authoritarian and for the members to become reluctant followers or rebellious. This tends to affect the sustainability of the project.

(c) Cooperation and Coordination among Similar Activity Projects

Saguti (2006) states that various community-based projects for poverty alleviation like the vegetable garden projects are engaged in similar activities within the same rural or urban environment. There was no coordination, exchange of experiences and scarce resources including transfer of knowledge and skills among project members and project leaders in the North-West province and other provinces in South Africa. The Project coordination, including building network and partnerships among members and leaders of similar project activities is very important for sharing experiences and other valuable scarce resources for the success and sustainability of the projects. Moreover, project members and leaders will be able to motivate one another.

(d) Developing Marketing Cooperatives

The study found that the community members were the main market for the vegetable products of the garden project. However, the sustainability of the project requires that the project has to expand its market and become

competitive beyond the Lekgophung community. The community was characterized by a high level of unemployment hence the purchasing power of the community members is limited. The project needed to improve productivity to increase the quantities of produce, the quality of the products and develop a marketing strategy.

Under the existing circumstances of limited human and other scarce resource capacity, the project could only achieve this through formation of vegetable cooperatives with other vegetable garden projects in the neighbouring communities. This will enable them to market their produce in large quantities beyond the village boundaries. It will also help them to get better and guaranteed profits than they received. The marketing cooperatives will also help the members and leadership to exchange business ideas which are beneficial for the sustainability of their projects.

(e) Sustainable Government and Development Agencies Support and Commitment

The government and other development agencies, at all levels (national, provincial and local) have an important role to play to ensure that poverty alleviation projects for marginalized social groups such as women, the youth, disabled, etc. receive the necessary support, in terms human resource capacity building (training), financial, infrastructural services, etc. to make these projects sustainable. It is important for government and other development agencies to ensure that when marginalized groups in poor communities start such projects, the necessary support services are available including training and monitoring of the project development. Some projects have stopped operating when members did not get regular benefits. Under such circumstances, the government and other development agencies should be available to motivate the project members to continue and find out the necessary strategies for continuity and sustainability.

4. Conclusion

The chapter showed that in spite of the fact that women in African local communities such as the Lekgophung village had initiatives to use their local knowledge systems to start poverty alleviation projects, these projects faced the challenge of sustainability. A number of factors were cited for this problem. These included lack of capacity in trained human resource, the

problem of remuneration of participants, lack of sustainable support and commitment by government and other developmental agencies, problems of financial accountability, and rampant theft. The chapter recommends that the situation could be improved through developing incentive strategies to attract youth participation; a holistic approach to human resource capacity building, i.e. both the leadership and ordinary members are capacitated in order to develop a common perspective of the project; promote cooperation and coordination among similar activity projects in order to share experiences and scarce resources including skills and technology transfer; sustainable government support and commitment to the sustainability of community-based poverty alleviation projects; government and other development agencies should take the role of women and their IKS seriously as the basis of sustainable development and poverty alleviation in African local communities. These are development resources which are community-based and hence the foundation of any sustainable development and livelihood in African poor communities.

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The Role of Sorghum as an Indigenous Drought Resistant Crop for Food Security in the North-West Province of Cameroon



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This chapter shows that sorghum is an important indigenous crop with socio-economic and cultural significance in the life of the Kom community in the North-West province of Cameroon. Yet, like other indigenous food crops in Cameroon, it is experiencing decline in production due to a number of factors: the colonial introduction of exotic cash crops, limited land for cultivation, land tenure insecurity, lack of modern farming equipment and lack of government financial support to small-scale farmers. The chapter recommends that the government formulate policies and strategies that will promote the cultivation of indigenous food crops including sorghum. Such policies should also promote and support the interface between indigenous and modern production systems to improve sorghum production. Moreover, government extension officers should learn about the importance of indigenous knowledge systems and their significance in indigenous food crops for the sustainable livelihood of the communities.

Keywords: Sorghum, indigenous crops, food security, Kom community, North-West province (Cameroon)

Introduction

The Food and Agricultural Organization of the United Nations (FAO) (2005) indicates that sorghum (*Sorghum bicolor* (L.) and the millets (*Pennisetum*

glaucum (L.) R. Br.) are essential to diets of poor people in the semi-arid tropics where droughts cause frequent failures of other crops. "They are most important in West Africa including the arid areas of North-West province of Cameroon, taking about 70% of total cereal production. Of the 700 million hectares planted to cereals in the world, 45 million are planted to sorghum and about 80% of this is grown in developing countries" (cf. Atokple n.d.; Kimber, 2000).

"Approximately 70 million metric tons of sorghum grain is produced annually as a dietary staple for some 500 million people in 30 countries". Generally, the area of Sorghum and millet in Africa has steadily increased over the years but the average yield trends are downwards. "Paramount among the yield reducing factors are predominant cultivation of inherently low yielding varieties, poor soil fertility, drought, pests and diseases" (cf. Atokple n.d.; Osmanzai, 1992).

International Crops Research Institute for the Semi-Arid Tropics and Food and Agriculture Organization of the United Nations (1994) indicates that in terms of tonnage, sorghum is Africa's second most important cereal. The continent produces about 20 million tonnes of sorghum per annum, about one-third of the world crop. However, these figures do not do justice to the importance of sorghum in Africa. It is the only viable food grain for many of the world's most food insecure people.

"Sorghum is crucially important to food security in Africa as it is uniquely drought resistant among cereals and can withstand periods of high temperature. A yield trial of 30 entries in Zimbabwe (28 sorghum genotypes and 2 maize hybrids) showed that under irrigation the maize hybrids ranked 11 and 22, whereas under drought conditions they ranked 28 and 30" (cf. Taylor, n.d.; cf. Why Sorghum?; Osmanzai 1992).

"Much of the African continent is characterized by semi-arid and sub-tropical climatic conditions. Africa is the only continent that straddles both tropics. Sorghum originated in Africa. It is uniquely adapted Africa's, being both drought resistant and able to withstand periods of water-logging. Sorghum in Africa is processed into a very wide variety of attractive and nutritious traditional foods, such as semi-leavened bread, couscous, dumplings and fermented and non-fermented porridges. It is the grain of choice for brewing traditional African beers" (cf. Taylor, n.d.; Murty and Kumar, 1995; Doggett 1998).

National Research Council (1996), Mmapaptsi and Maleke (1996) show that sorghum is the grain of 21st century Africa. “New products such as instant soft porridge and malt extracts are great successes. In the competitive environment of multinational enterprises, sorghum has been proven to be the best alternative to barley for lager beer brewing. The potential for sorghum to be the driver of economic development in Africa is enormous. Continuing focused fundamental and applied research is essential to unleash sorghum’s capacity to be the cornerstone of food security in Africa” (Taylor, n.d.; Gomez, 1993).

Sorghum grows in areas where the annual rainfall is in the range 500-700 mm per year. “Hence, most of the countries in Africa where sorghum is a significant arable crop is arid and areas at risk of desertification. This is related to the fact that the rain in sub-tropical Africa is intermittent and characterized by brief periods of very high rainfall. In fact sorghum is not only drought-resistant, it can also withstand periods of water-logging” (Taylor n.d.; National Research Council, 1996).

Jordan and Sullivan (1992) indicate that the precise reasons for sorghum’s environmental tolerance are not fully understood and are undoubtedly multifactorial. They show that sorghum often has “very deep penetrating and extensive roots. Apparently it conserves moisture by reducing transpiration when stressed by leaf rolling and closing stomata; higher than normal levels of epicuticular wax appear to be of importance in this respect. Moreover, sorghum also appears to have a high capacity for osmotic adjustment to stress to maintain turgor pressure in cells. Certain sorghum varieties also possess “stay green” genes that enable them to continue to photosynthesise, post-flowering during drought. Further research into the mechanisms of sorghum’s environmental tolerance will clearly be highly beneficial” (Taylor n.d.; Rosenow, Mullet and McIntyre, 1997).

“Over the past 25 years sorghum production has increased steadily in Africa, from 11.6 million tonnes in 1976 to 20.9 million tonnes in 2001. However, as can be seen the increase in production has been as a result of increasing the land area under cultivation and there has been no overall improvement in yield. Average yields remain below 1 tonne/ha. This is because sorghum cultivation in Africa is still mainly characterised by traditional farming practices; with low inputs (no inorganic fertiliser or pesticides) and traditional varieties or landraces. Such low yields mean that

there is often no surplus sorghum, without which processing industries cannot be created” (Taylor n.d.; Rosenow, Mullet and McIntyre, 1997).

Babu (1994) portrays the importance of indigenous knowledge (IK) in the agricultural sector and food security in Africa. Over 90% of Africa’s agricultural output is by small –scale (less than 5 ha) farmers who have for centuries, sustained their food supply through a considerable wealth of IK on how to harness both the natural and socio-economic factors of production (Rajaskeran, 1993).

Arthur (2003) and Bell (2000) add that colonialism destroyed the essence of African food security by introducing exotic crops such as wheat, barley, maize, rice and monocultural agricultural systems geared for the external market rather than sustainable community livelihood. Commercial crops like cocoa were introduced in Ghana, peanuts in Senegal and Gambia, tobacco in Malawi and tea in Kenya, cotton in Angola and sisal in Tanzania etc. These export crops subjected Africa to total dependence on Europe on market demands at the expense of indigenous food crops such as sorghum which provided African communities with food security. Nieuwoudt and Groenewald (2003:171) define food security as “access by all people at all times to enough food for an active, health”. Crops such as various types of millet and sorghum have been local staples for many communities in the North-West province of Cameroon.

Berlin (2005) and Samper (2004) indicate that, the climatic conditions of the North West province of Cameroon greatly favour the cultivation of drought resistant indigenous African crops like sorghum. Sorghum is grown in vast areas of clay soil, called Kara (plural kare) that is difficult to till during the rainy season (Wilson, 2002). The crop is grown twice a year (during the rainy and dry seasons). Numerous local varieties of sorghum are adapted to the soil conditions

At the time of the study, the community was experiencing problems of food shortages. Food supply came from neighbouring communities such as Babanki, Bambui and Wum. Nutritional deficiencies among children and HIV/AIDS plagued the community. Sorghum was a staple food that was in a decline. Like in other parts of Africa, sorghum production for food security has been neglected in the North-West province of Cameroon over the years in favour of exotic crops which are not adaptable to the harsh climatic and soil conditions of the area.

An examination of past research studies (Berlin, 2005; Bell, 2000; Rao, 1997) show that much has been published on food security in Africa, but little attention has been given to the role of African indigenous crops like sorghum for food security. There was fear among community members that the valuable knowledge in sorghum production was disappearing. The production of sorghum has served the food security and socio-cultural needs of the community over the years.

This chapter that examines the role of sorghum as an indigenous crop for food security in the Kom community in North-West province of Cameroon, discusses the following issues: the socio-economic and demographic characteristics of respondents community members; the socio-economic and cultural significance of sorghum in the community; the factors which led to the decline of sorghum production; indigenous sorghum production management systems; indigenous post-harvest sorghum management systems and the prospects of interfacing indigenous and modern sorghum production systems.

Methodology

Taking into consideration the community-based nature of indigenous knowledge systems (IKS) the study followed a participatory and case study approach to investigate the role of sorghum as an indigenous drought resistant crop for food security in the Kom community of the North-West province (Cameroon). According to Reason and Bradbury (2001) the main purpose of participatory techniques is to enable development practitioners, government officials, and local people to work together to plan context appropriate programs. The focus in this research approach is on a shift of thinking in research that is centrally concerned with the relations between those who conduct research and those who are research subjects. The crucial shift is from doing research on people to doing research with people. In this study community knowledge holders and IKS practitioners such as local sorghum farmers (men and women), traditional leaders, community elders, etc. were actively involved in the whole research process from research design to the interpretation of the research findings. Their views were sought in all stages of the research process. Moreover, ensure maximum participation of the knowledge holders, the study was conducted in the local language.

Conrad (2002) describes a case study research strategy in the following words:

Rather than using large samples and following a rigid protocol to examine a limited number of variables, case study methods involve an in-depth, examination of a single instance or event. They provide a systematic way of looking at events, collecting data, analyzing information and reporting the results. As a result the researcher may gain a sharpened understanding of why the instance happened as it did, and what might become important to look at more extensively in future research.

The Kom community was the unit of analysis. It lives in an arid environment with an average annual rainfall of 500 mm. A purposive sample of 80 respondent community members (50 women and 30 men) participated in the study. Participation of women in the sample was important because according to the community leaders, they were considered to be the main knowledge holders in the community in matters of agricultural production as the economic main activity in the community.

Berelson (2000) defines a purposive sample as,

a non-representative subset of some larger population, and is constructed to serve a very specific need or purpose. A researcher may have a specific group in mind, such as traditional healers. It may not be possible to specify the population. They would not all be known, and access will be difficult. The researcher will attempt to zero in on the target group, interviewing whoever is available.

Qualitative research methods such as key informant interviews, focus group discussions and participant observations formed the core of data collection methods; while a questionnaire was administered to the research sample in an effort to collect supportive quantitative data.

Cooke and Kothari (2001) explain that qualitative research seeks out the “why”, not the “how” of its topic through the analysis of unstructured information – things like interview transcripts, open ended survey responses, emails, notes, feedback forms, photos and videos. It does not just rely on statistics or numbers, which are the domain of quantitative researchers.

Qualitative research is used to gain insight into people's attitudes, behaviours, value systems, concerns, motivations, aspirations, culture or lifestyles (cf. What is Qualitative Research?).

Key informants were interviewed at all levels of the research project as a means to gain in-depth qualitative information on the role of sorghum for food security in the study community. Focus group discussions were also conducted with randomly selected groups of 6-10 community members. A focus group discussion is a semi-structured interview in which the discussant knows in advance the topic to be covered. The people included were known to have been involved in specific experiences related to the research problem, i.e. sorghum cultivation.

Qualitative data in the form of audio taped interviews were transcribed and translated from Kom to English. Interview and participant observation notes were typed and a content analysis conducted.

Burns (2007) defines content analysis as a systematic analysis of the content rather than the structure of a communication, such as a written work, speech, or film, including the study of thematic and symbolic elements to determine the objective or meaning of the communication.

Quantitative data in the form of questionnaires were checked and coded. Data was analysed using SPSS/PC+ (Babbie, 2004).

The Socio-economic and Demographic Characteristics of Respondents in the Kom Community

In order to describe the socio-economic and demographic characteristics of the respondent community members, they were asked through a questionnaire to indicate their age groups, gender, marital status, etc. The results are discussed below.

The study found that the majority of the respondents, both male (85%) and female (78%) were in the age group of 50 years and above. Interviews and focus group discussions with this age group showed that they had a wide range of knowledge about the research problem. Like in other African communities marriage in the Kom community plays a significant role in community life because it is part of person's social and cultural status and rite of passage. It is on the basis of this that the study sought to establish the marital status of the respondents. The majority of the respondents, both male (88%) and female (61%) were married. Interviews and focus group

discussions showed that these categories of respondents were the one who were directly involved in sorghum cultivation and were highly knowledgeable about the research problem.

The study probed into the educational background of the respondents both formal and informal. The study found that the majority of the respondents, both male (59 %) and female (61%) did not attain the matric qualification level. However, interviews with them revealed that they had a wide knowledge of sorghum production acquired through many years of agricultural practice.

Taking into consideration the fact that most of the agricultural work in the study community was labor intensive and for food security, it emerged that the amount of food available to households was affected by the household size (number of household members), the study was interested in establishing the percentage distribution of respondent household sizes. The majority of the respondents, both male (66%) and female (68%) reported that they had six or more household members.

The following section discusses socio-economic and cultural significance of sorghum in the Kom community.

Socio-economic and Cultural Significance of Sorghum in the Kom Community

The respondents were asked through face to face interviews and focus groups discussions to explain the importance of sorghum in the Kom community.

The respondents indicated that besides provision of food security and income, the Kom community valued sorghum because of its socio-cultural importance. For instance, spirituality and ritual performances constituted an important part of sorghum production system to ensure food security in the community. Firstly, during nursing, women “put water into a calabash and the peace plant (*nkeng*) was used to sprinkle on the seedlings”. Rituals were also conducted using *sha* (home-made beer) before planting commenced. Quarter heads coordinated the ritual, whereby *sha* was poured on the doorpost of each producer. This was to appease the ancestors, to ensure crop protection, and request for a good harvest. During the planting period, majority of respondents acknowledged that most farmers, both men and women visited the chief priest who gave them some medicine to ensure good

crop yield. Rituals were also conducted on the boundaries of farms to prevent birds and rodents from destroying the crops. Diviners were said to communicate with the ancestors. This was vital and indispensable in ensuring food security.

Moreover, respondents argued that cultural beliefs determine people's attitudes towards the type of food eaten. For instance, the taste and colour of a foodstuff could overshadow values such as nutrients and vitamins which people cannot see or feel. This is supported by Rao (1997:41) who elaborates that cultural beliefs are very important in determining people's perceptions towards food. Usually, when people think about food, they seldom take into consideration its nutritive contents such as proteins, minerals and vitamins. Rather, they consider food in terms of taste, smell and colour.

Focus group discussions with respondents indicated that there was a decline in sorghum production as an indigenous food crop over the years in the Kom community. The study wanted to establish from the community perspective the factors which contributed to this decline. These factors are discussed in the following section of the chapter.

The Decline of Sorghum Production in Kom Community

The respondents were asked through a questionnaire and focus group discussions to explain the production status of sorghum in the Kom community. The majority of the respondents (over 60 per cent), both male and female indicated that there was a decline in the production of sorghum and the staple food of the community.

This section looks at factors contributing towards the decline of sorghum production from the Kom community perspective. This is due to the fact that most often, arguments about the decline of sorghum production in Africa have been attributed to colonialism and other forms of imperialism as portrayed in the literature. Other factors include limited land, land tenure insecurity and limited financial and material support to local sorghum farmers.

Interviews and focus group discussions with respondent community members and other stakeholders in the study community showed that one of the contributing factors to the decline of sorghum production in the Kom community was the impact of colonialism on indigenous crops. Colonialism

introduced and encouraged the production of exotic crops in local communities especially commercial crops for colonial interests. This reduced the importance of food crops such as sorghum that included the concerns and needs of the residents in the cultivation area. This was also aggravated by immigration as more people came into the community and land became scarce and expensive. Local communities around the Mbingo, Fundong and Belo areas were facing this problem.

According to respondent community members, the problem of land scarcity was also exacerbated by indigenous land management systems especially the practice of shifting cultivation. Land was left for some years to regain natural fertility after use. There was a belief among the people that during the years when land was allowed to fallow, ancestors meditated over the land and cleansed it from malicious (evil spirits) forces. This was considered a form of renewal to land for future crop cultivation, but at the same time, it hindered continuity of cultivation of sorghum by limiting availability of agricultural land.

Furthermore, the respondents complained about the corrupt system of governance and greedy elites. The Fon (chief) and other traditional authorities were blamed for the sale of land to Fulani grazers and other outsiders. This created scarcity of land for locals to cultivate food crops such as sorghum.

Regarding land tenure insecurity, the respondents complained that land tenure insecurity impacted on sorghum production. In the focus group discussions and interviews with respondents and community knowledge holders, women were applauded as key players in sorghum production. It was the responsibility of the men to clear the land and prepare it for women to carry on with cultivation. Women did most of the agricultural labour such as tillage, weeding, harvesting and seasoning. In spite of this contribution women had limited rights to land ownership.

Interviews and focus group discussions with respondents also revealed their concern on the lack of farming tools, limited financial support, lack of improved varieties of sorghum and land of government and development agencies measures to improve sorghum production for food security in the community. One female respondent stated that “if effective tools, inputs and initial investment capital were provided to women in particular, it would increase production on a large scale and thereby fighting against food scarcity”.

Indigenous Sorghum Production Management Systems in Kom Community

The study was interested in establishing through interviews, direct observation and focus group discussions with community members, especially IKS practitioners such as farmers, the indigenous sorghum production management systems in the community in terms of cultivation methods, harvesting, post-harvest processes of the sorghum crop, etc.

It was revealed during focus group discussions and interviews that mixed cropping or intercropping of sorghum with other food crops was a strategic measure to ensure food security and prevent land erosion or degradation. One female farmer explained that they also planted sorghum along other crops like pumpkins, cassava, cocoyams and beans. Another female respondent reported that in mixed cropping, the weeds removed from the maize plant were spread in bed rows to conserve soil moisture and when they decomposed, they provided natural manure for crop growth. The study found that the majority of the respondents both male and female (over 80 percent) cultivated sorghum as a mixed as a mixed crop with other crops for food security.

Indigenous Sorghum Post Harvest Management Systems

Post-harvest sorghum management systems were very vital for food security. Respondent sorghum farmers reported that, after drying the grains in the sun they were put in plastic bags or the grain was preserved in calabashes. A small hole is cut on top of the calabash, the seeds inside the calabash are removed and the grains of sorghum put inside and stored in a dry place in the bands for another planting season. Healthy cultivars are separated as seeds for the next planting season and grains for ritual purposes are also stored separately.

Furthermore, majority of respondents and knowledge holders reported that, the mortar and the pestle were used in processing grains for food stuff; like “*guinea corn fou-fou*” making home beer (*sha*), cooked with beans (*corn chaff*), *puff-puff* and was also roasted. Farmers exchanged seeds of sorghum with those of other crops such as beans. It was reported that custom and tradition never permitted the sale of sorghum. Nowadays community members sell the sorghum to buy seeds of other crops that were not locally produced.

Prospects and Challenges of Interfacing Indigenous and Modern Sorghum Production Systems in the Kom Community

This section looks at the attitudes and perceptions of respondent community members towards the transformation of indigenous production systems through interfacing with modern sorghum production systems. For instance, the study revealed that more than 80% of the respondents, both male and female, were in favour of applying fertilizers and pesticides to improve sorghum output and for crop protection, respectively. This was in spite of the fear that chemical fertilizers were toxic and could pollute the environment, especially water. Focus group discussions revealed that the agricultural research agenda in Cameroon had neglected the needs of smallholders, especially women farmers. All the respondent sorghum farmers, both male and female, complained that they did not receive any form of government support and their local knowledge was not taken seriously by most development agencies including extension officers.

Interviews and focus group discussions with respondents including direct observation of the irrigation system in the community showed that the low sorghum production was also the result of poor soil and water management systems. Therefore, the introduction and the availability of modern and affordable irrigation systems could enhance productivity and increase output of sorghum. The study found that all the respondents, both male and female appreciated the introduction of modern irrigation systems in sorghum production. They were aware of the fact that modern irrigation systems were expensive to finance. It was on the basis of this that most small scale-farmers relied on dry land farming.

It was also reported by respondents that low sorghum production and food insufficiency in the community was due to the reliance on purely local varieties and limited research on the socio-economic and cultural significance of sorghum in the area. The respondents also raised the concern during focus group discussions that the government and other development agencies in Cameroon have continued to pursue the colonial agrarian policies which worked against the promotion and development of indigenous food crops such as sorghum and millet. This was done in favour of exotic cash crops.

Conclusion

The study revealed that in spite of the decline in sorghum production due to the various factors discussed, sorghum was still an important indigenous crop for food security, socio-economic and cultural life of the people in the Kom community. It has served this purpose over the years in spite of the adverse effects of colonialism on the indigenous agricultural systems of the local communities in Cameroon. On the basis of the above, the study recommends the following.

Firstly, there is the need for the government to develop policy strategies to promote the cultivation and use of indigenous food crops such as sorghum. Secondly, government and other developing agencies should support small-scale farmers, especially women with modern inputs and equipment, finance and researched information on sorghum production, post-harvest and marketing channels. Thirdly, in order to promote sustainability of sorghum production among local producers, the interface between indigenous and modern production systems including technologies should be promoted and supported. Agricultural extension officers should learn about the efficacy of indigenous food production systems and integrate them in their work.

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The Role of Indigenous Knowledge and Innovation Systems in Sustainable Development in Africa



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The chapter demonstrates that Indigenous knowledge and community innovations have an important role to play in the sustainable development of the continent. They need to be promoted and supported at both national and continental levels. However, the chapter also reveals the minimal contribution which has been made so far by national and continental institutions of innovation in the remobilization of IK and community innovations for sustainable development. It is argued that if these institutions are to be relevant to the sustainable development of the continent, they need to undergo a paradigm shift and take a proactive position in the remobilization of IK and community innovations. Moreover, in order to be more freely available, community innovations need to be documented, protected and efficiently shared in the interests of the knowledge holders and respective communities. The role of ICT in this endeavour is also acknowledged. In order to avoid the duplication of efforts in the continent, the importance of creating networks and partnerships among the different IKS stakeholders is emphasized.

Keywords: Indigenous knowledge, innovation, sustainable development, Africa

1. Introduction

Although indigenous knowledge had been marginalized essentially by imported western technologies, its importance has been amplified in recent

years. A number of questions have been posed by various scholars as to why Africa should be part of the global knowledge economy including why and how Africa can mobilize its indigenous knowledge and innovation systems including its natural resources in the promotion of sustainable development (Kimeu, 2007; UNDP, 2007; Kanungo, 2000). In this chapter indigenous knowledge refers to a distinctive body of knowledge and skills including practices and technologies that have been developed over many generations outside the formal educational systems, and that enable communities in specific environment to survive. Local community innovations on the other hand is the process through which individuals or groups discover or develop new and better ways of managing resources including building on and expanding the boundaries of their indigenous knowledge systems (Alders, 2003).

Experiences from other developing countries such as South Korea and Singapore have demonstrated to African countries that knowledge is the foundation of sustainable development and that a global knowledge revolution is taking place, leading into a post-industrial society. The mega trends in this knowledge revolution and globalization include telecommunication explosion, intensified global competition, scientific advances in areas such as bio-technology, increased exchanges of technology (international licensing flows); and that knowledge investments are more than capital good investments. It is argued that Africa missed the opportunity of going through an industrial era; therefore, it needs to take advantage of its indigenous knowledge and innovation systems including resources to participate effectively in the knowledge revolution which is characterized by a shift from a resource-based to a knowledge-based economy (Watson, 2001; Wolfgang, 2000; Haney and Knowles, 1998).

Indigenous community innovations through informal experimentation have always been happening in the Southern African communities, both rural and urban. Indigenous community innovation has been defined by some as the process through which individuals or groups discover or develop new and better ways of managing resources including building on and expanding the boundaries of their indigenous knowledge systems.

Research studies (Ferleger, 2003; Summers, 2000) in various parts of the Southern Africa region have shown that over the years African indigenous knowledge (IK) and innovation systems have been overlooked in the search process for sustainable and new solutions to the mitigation against

food insecurity, malnutrition, unemployment and poverty in general partly because: they do not carry high income gains; there are no modern scientific records of their efficacy; the local farmer innovators lack organizing frameworks and information as to who needs their innovations, how to find the users, when to approach them, why they should approach them, and whether the receivers will appreciate the efforts. The lack of organizing frameworks makes African indigenous innovators not to utilize fully the potential gains from their innovations (Edwards, 2002; Hadwiger, 1992).

However, in spite of the above, there has been a growing realization and interest among researchers, policy makers, practitioners and other development agencies on promoting the role and the importance of African IK and innovation systems in promoting sustainable development and community livelihood. This is due to the failure of western approaches to sustainable development including food security, mitigation against dreadful diseases such as HIV/AIDS, TB, malaria etc. in local communities. They focused on technical interventions based on external inputs and failed to mobilize local inputs and experiences. Experience from various parts of Southern Africa and Africa at large, testify that community indigenous knowledge and community innovation systems contribute greatly to community and household food security, nutrition and alleviation of grass-root poverty, especially among poor women without changing the African indigenous cultural food patterns. They are also appropriate for community food security because most of the locally-grown food is for local consumption (Frank and Schwarzweller, 2004).

Furthermore, current literature (Johnson, 1997) on African (IK), especially in areas of agriculture and natural resource management, provide success stories that Africans are experienced innovators in their specific circumstances. Excellent examples of African community innovations and discoveries in the Southern Africa region include various types of crop breeding, grafting against pests, water harvesting, soil management, integrated rice-duck farming and various aspects of farmer seed systems including building farmers' seed networks, integration of forage legumes into crop and livestock farming; various types of post-harvest technologies for food security, etc. These are but some manifestations of the diversity and originality of the local agricultural innovators in the region. Murray et al. (2000) argues that these valuable community knowledge and innovation systems are not known to the wider community because they are not

documented, and there are no policy strategies nationally and regionally to promote them for sustainable development and community livelihood.

According to Wava and Donald (2002) and Thompson and Stout (1991), less understood among policy makers, development agencies and other stakeholders is the particular ways and manner in which African Indigenous Knowledge and innovation systems interact with other productive resources (e.g. natural resources, capital, finances etc.) in the context of sustainable development within productive sectors such as agriculture, natural resource management, etc. In her discussion on the importance of recognizing and promoting African indigenous community innovations in agriculture and natural resource management Edwards (1996) states that current mechanisms of funding research and development favour formal elite organizations, such as international research centres, universities, government institutions, Non-Governmental Organizations (NGOs) etc. These organizations favour activities that originate from themselves rather than understanding and supporting the farmer-originated and-led initiatives. The resource poor farmers in rural areas cannot access the research and development funds to pursue their own initiatives and cannot genuinely influence these organisations. Thus, it has been often difficult for farmer innovators to gain relevant information or advice from scientists in interpreting farmers' experimental results, because the farmers cannot bring scientists to see local innovations in the field. As a result of these barriers, local innovations often cannot spread and stimulate ideas among other farmers (Johnson and Bonnen, 2004).

This study has been motivated by various conferences and workshops within and outside the Southern Africa region such as the 2004 SADC IKS Conference in Dar es Salaam, Tanzania, on IKS and Sustainable Development), which urged academicians and researchers in the region to promote the role of IKS in sustainable development and community livelihood in the region and Africa at large; the Second Biennial Knowledge Management Africa Conference (2007) in Nairobi which recommended the importance of creating a network and partnership platform for the development, promoting and coordination of Knowledge Management Africa (KMA) Policy Guidelines for IKS for Sustainable Development and knowledge economy in Africa.

The objective of this chapter, therefore, is to elucidate the role of African indigenous knowledge and community innovation systems (AIKIS)

in the sustainable development of the continent. The following specific aspects are discussed: the role of indigenous knowledge systems (IKS) in promoting a sustainable knowledge economy for Africa; the role of knowledge management in remobilizing African indigenous knowledge and innovations for sustainable development; knowledge management and African biodiversity; the importance of interfacing IK and innovations with modern science & technology for sustainable community livelihood; and the role and relevance of national and continental systems of innovation in remobilizing African IK and innovation systems for sustainable development.

2. Methodology

This was a survey of the Role of Indigenous Knowledge and Innovation Systems in Sustainable Development in Africa. The study was based on the examination of secondary sources. According to Jones (1996) secondary data refer to information gathered by someone other than the researcher conducting the current study. The data can be internal or external to the organization and accessed through the internet or perusal of recorded or published information. The study used relevant sources of secondary data, including books and periodicals, government and non-governmental publications related to the research problem, etc. Taking into consideration the comprehensive nature of the study, the researchers took the following advantages of examination of secondary data: Secondary data were available which were appropriate and adequate to draw conclusions; not necessary. It was far cheaper in this case to collect secondary data than to obtain primary data; the time involved in searching secondary sources was much less than that needed to complete primary data collection.

3. Presentation and Discussion of Findings

3.1 The Role of Indigenous Knowledge Systems (IKS) in

Promoting a Sustainable Knowledge Economy for Africa

Indigenous knowledge (IK) and innovations are a significant resource which could contribute to the increased efficiency, effectiveness and sustainability of the development process in Africa. It is a key element of the social capital of the poor and constitutes their main asset in their efforts to gain control of

their own lives (Mascarenhas, 2004). Mobilization of IK and innovations promotes a sustainable development as outlined hereunder:

Millennium Development Goals (MDGs)

Development approaches and strategies that rely on indigenous knowledge and innovation systems to achieve the Millennium Development Goals have a greater potential for sustainable success than those which ignore local community conditions and knowledge systems (Watson, 2001). There is therefore, the great need to (i) raise awareness among the development community of the role that community-based practices can play in enriching the MDGs processes and (ii) help development practitioners to mainstream indigenous knowledge and innovation systems into the activities of development partners and to optimize the benefits of development assistance, especially to the poor. For instance, World Bank (2004) shows that indigenous knowledge and innovation best practices in different parts of Africa have demonstrated how leveraging indigenous and modern knowledge systems contributes towards reducing maternal mortality, treating HIV/AIDS, increasing food security and conserving biodiversity. Tanga AIDS Working Group (TAWG) in Tanzania is an outstanding example, as elaborated below (World Bank, 2004).

The Tanga AIDS Working Group (TAWG) is one of the innovative non-governmental organizations (NGO) in Tanzania that bridges the gap between traditional and modern biomedicine in treating people living HIV/AIDS with traditional medicine. It links traditional healers, physicians and health workers, botanists, social scientists, and People Living with AIDS (PLWAs). As is the case in most parts of Africa, the health workers in Tanga observed that many patients visited both the hospital and traditional healers. Bio-medical personnel observed that patients treated with the indigenous medicinal plants generally had improved appetites, gained weight, suffered from fewer and less severe opportunistic infections. Given in the proper form and dosage, they are very safe. Hence, they decided to make contact with local healers with the objective of initiating a referral network. Their network evolved into the TAWG.

Traditional healers working with TAWG had knowledge of indigenous medicinal plants with enzyme rich foodstuffs which could boost the immune system of HIV/AIDS patients. These include oils from plants such as soya, cashew and shea butter saturated fats, and wild fruits. Moreover, vegetables

with high fibre content, which the patients were also encouraged to consume, were helpful in cleansing the body system. Given in the proper form and dosage, they are very safe. They extended the patients' longevity, improved the quality of their lives, and reduced the number of orphans since parents remained alive.

Wealth and Income Generation

Indigenous knowledge and innovation have the potential of going beyond poverty alleviation and generate wealth for African local communities through utilizing their local knowledge, innovations and resources (World Bank, 2004; UN, 2002).

On income generation front Kimeu (2007) demonstrated the way local communities in Kitui district, Kenya, used their local knowledge and innovations developed over the years in promoting beekeeping activities for sustainable income generation.

Research and Development

In recent years there has been a dramatic increase in interest in the role that African indigenous knowledge and innovations can play in sustainable development and community livelihood. This is due to the increasing realization among researchers, academics, policy makers and development agencies within and outside Africa that development efforts that ignore local circumstances, tend to waste enormous amount of time and resources. Compared to modern technologies and approaches to sustainable community livelihood, indigenous knowledge and innovations have been tried and tested by the local people themselves. They are effective, inexpensive, locally available, culturally appropriate, and based on preserving and building on the patterns and processes of nature. It is in recognition of this important role of IK and innovation systems in sustainable development, especially in Research and Development (R&D, that IKS were identified as one of the flagship programme areas of the NEPAD Science and Technology (Ambali, 2005).

Research and Development in indigenous knowledge and innovation including dissemination and utilization of research results are underway in different African countries on IK and innovations in critical areas of community life such as public health. A few examples could be cited: In South Africa, the National IKS Office (Department of Science and

Technology) is sponsoring the Medical Research Council (MRC) Indigenous Knowledge Systems Lead Programme by financing cutting edge laboratory equipment for validation of traditional medicine in areas of toxicity, efficacy and pre-clinical trials. The equipment has the ability to produce traditional medicines into capsules, tablets and creams; in KwaZulu-Natal (South Africa) has been training traditional healers in diagnosing HIV/AIDS infections. This is to capacitate them to identify HIV infections from a Western perspective and be able to make medical referrals to modern hospitals; bio-prospecting processes are also under way in countries such as Zambia, where preliminary results of traditional medicines for HIV/AIDS *in vitro* are showing positive results (Kayumba, 2002).

Kaya and Materechera (2007) show that as is the case with other Southern African countries, Malawi suffers from the major cattle health problems *viz.* East Coast fever (ECF), babesiosis, anaplasmosis, heartwater, and endoparasites. Control of these health problems using western drugs by local farmers is not a viable option because of the high costs involved. Although the Malawi government supplies some veterinary services to the farmers, modern veterinary sector is plagued by numerous constraints, including the erratic supply and prohibitive expense of veterinary drugs and supplies, poor communication facilities, and a shortage of human resources.

Therefore, besides the existing veterinary support services, farmers in these rural areas use traditional medicines and innovations to treat various livestock diseases. In the Northern Region of Malawi, local farmers crush local plants or parts of them and mixed them into drinking water for chickens to prevent or cure Newcastle disease and diarrhoea. They also used *Mucuna puriens* and *Tephrosia vogelii* as insecticides against external parasites such as fleas in chickens. The farmers used leaves, barks, roots or whole plant as medicinal materials which they claimed to be able to treat 17 of the 29 animal ailments. The ailments that could not be treated by the farmers were tuberculosis, pneumonia, rabies, and poisonous caterpillars in ruminants and stillbirth and African swine fever (ASF) in pigs.

Indigenous veterinary remedies are mainly made from plants, but also from animal parts, salt, and soil. The materials are commonly used in combinations. The local knowledge holders are concern that since plants are the most common ingredients, scarcity of plants may decrease the usage of indigenous veterinary remedies. Hence, there is need to encourage the conservation of medicinal plants by both local communities and institutions

through the establishment of botanical gardens. Most of the community members have a wide knowledge of indigenous veterinary remedies. They learn about the remedies from parents or relatives.

Global Competitiveness

As Sindinga (1999) states African indigenous communities are increasing realising the potential benefits which digital technologies as part of the competition and globalization process can offer with regard to the documentation, sharing and preservation of their local knowledge systems and cultures. Documentation, sharing and preservation of IKS using these new technologies have become an extremely important tool to ensure the survival and self-sustainability of local communities including their knowledge systems (both biological and cultural).

However, African indigenous communities are also coming to understand the opportunities for misuse and misappropriation of their knowledge which may accompany digitisation. There is therefore, the need to develop sets of software tools which are appropriate for these indigenous communities and other IKS stakeholders to document, share and preserve IKS. The software tools should enable authorised members of the communities and other IKS to: define and control the rights, accessibility and reuse of their digital resources; uphold tribal customary laws pertaining to sacred knowledge or innovations; prevent the misuse of indigenous heritage resources (cultural and biological) in culturally inappropriate or insensitive ways; ensure proper attribution; and to enable communities to describe their biological and cultural resources in their own words and perspectives (Shibanda, 2006).

There is also an increasing realization among researchers, development agencies and policy makers that knowledge is important in the generation and articulation of new ideas to transform African societies in the global economy. Wolfgang (2000) states that one of the most important strategies that will determine and influence Africa's sustained growth and development in the foreseeable future will be the continent's capacity to access and use efficiently and effectively its indigenous knowledge resources and innovations to its own advantage in the competitive global knowledge economy.

Knowledge Management and Transfer of Technology

Herman (2005) defines Technology Transfer as the process of developing

practical applications for the results of scientific research and development (R&D). Technology transfer has played a central role in both international economics and national development policy through the late 20th century. Yet efforts to transfer novel technologies across national borders have varied widely, with outcomes ranging from success, to significant adaptation, to failure.

Indigenous knowledge and innovation systems are invaluable, diversified, and comprehensive. By promoting these knowledge and innovation systems, various stakeholders can understand them better as the basis for decision-making within a given society. Furthermore, by comparing and contrasting IK and innovation systems with the modern technologies it is possible to see where the latter can be utilized to inter face with the indigenous technology systems for sustainable community livelihood (Mashaka, 1995).

The preservation of diverse knowledge should be prioritized in Africa. This can be done by documenting, incorporating, and disseminating indigenous knowledge, and by creating awareness and supporting projects among local populations. This makes indigenous knowledge and innovations a key resource to successful participation of local communities in technology transfer. The World Bank (2004) demonstrates that for any technology transfer to have currency in the sustainable development process, it must include the active participation of the local communities as the beneficiaries of that technology transfer. This is due to the fact that this factor tends to be neglected by most technology transfer experts due to the dominance of the western modernization paradigms of development in Africa which tend to look at local communities as mere recipients of development initiatives from outside.

3.2 The Role of Knowledge Management in Remobilizing African Indigenous Knowledge and Innovations for Sustainable Development

African local communities are beginning to realize the potential benefits knowledge management can offer them with regard to the documentation and preservation of their knowledge and innovation. The World Bank (2004) indicates that since 1990s knowledge management is moving ahead rapidly on a broad front, led principally by sectoral networks through eight principal

activities: (i) building communities of practice (of which the core members are called thematic groups) (ii) developing an on-line knowledge base in which know-how is stored and from which it can be made widely accessible; (iii) establishing help desks and advisory services; (iv) building a directory of expertise; (v) making available key sectoral statistics; (vi) providing access to transaction or engagement information; (vii) providing a dialogue space for professional conversations; and (viii) establishing external access and outreach to external clients, partners and stakeholders. These network-driven initiatives are being complemented by various programmes, including the establishment of (i) databases of up to date regional macro-economic statistics, (ii) collections of country information, (iii) programs to enhance the ability of client countries to collect and process information and to connect themselves to the internet, (iv) the tailoring of sectoral best practices to regional circumstances, and (v) the building of communities of practice that work on specific countries (country teams) (cf. Denning, 1998).

These communities in their different cultural and natural environments have always had their own model of managing knowledge. Many isolated and traditional African communities continue to pass onto the next generation proven practices and experiences which are validated through repeated use and application by the older generation. These practices and experiences become tradition and indigenous to specific communities or societies. There is ample evidence in the continent that these practices can be incorporated into modern and scientific processes to solve development problems. The challenge for IKS researchers, practitioners and policy makers is to maximize on the scientific and indigenous methodologies of capturing, analysis and sharing these traditions and practices in a manner that bring prosperity to African local communities and knowledge holders (Woodley, 1991).

Furthermore, over the past 40 years, the international development community has primarily operated on the premise that input/output development models which offer fast, efficient transfer of goods and structural entities, were the key elements in a country's economic and social development. However, failure of the western developmental programmes and institutions in Africa and other developing countries to achieve sustainability and effectiveness socio-economic development has brought into question the efficacy of these foreign approaches to development in Africa. This new reality has initiated a paradigm change away from mechanistic top-down models primarily concerned with economic growth

toward dynamic participatory approaches including the use of African indigenous knowledge and innovation systems, concerned with all facets of human development. The power of this paradigm shift is that it not only provides new solutions but it also gives new insights as to what are the main constraints of sustainable development in the developing countries, especially in Africa (Iguisi, 1997). Knowledge management can remobilize indigenous knowledge and innovation systems in the following ways:

Documentation of Indigenous Knowledge and Innovations

World Bank (2004) emphasizes that in order for African Indigenous Knowledge and innovations to be available for use in promoting sustainable development, they need to be fully documented, stored shared through advocacy, capacity building and networking including partnership building. IKS best practices refer to examples of cases of documented tactics and practices that demonstrate the use of IK in developing cost-effective and sustainable survival strategies for poverty alleviation and income generation. The National IKS Office (DST) in collaboration with the IKS Centre of Excellence, North-West University (South Africa) documented IKS best practices in the Southern African Development Community (SADC) Region which demonstrate the efficacy of indigenous knowledge and innovations in sustainable community livelihood in areas of public health, food security, post-harvest technologies, natural resource management, etc. This information needs to be widely disseminated and incorporated in the school curriculum (Kaya and Materechera, 2007).

African Indigenous Knowledge and Innovations in the School Curriculum

Reagle (2004) states that for indigenous knowledge and innovations to have significant bearing on the sustainable development African local communities, it must gain some currency in the school system, the social institution officially chartered to organize learning, certify knowledge and train the next generation of citizens. And yet across the continent, education has been the sector least likely to embrace African indigenous knowledge and innovation systems or to regard indigenous science as a legitimate source of inspiration for the youth and local communities in the development process.

However, there is a growing recognition of the value of indigenous knowledge for sustainable development. This demonstrates that it is culturally and educationally important to sustain and promote African indigenous knowledge and innovations in local communities through integrating it into the school curriculum. This could help to enhance the relevance of existing western-oriented school curriculum through various ways such as learning attitudes, values and culture for a sustainable future and across generations; starting from the known (locally) to the unknown; and learning outside the classroom.

Sharing of Indigenous Knowledge and Innovations for Sustainable Development

Warren (1991) states that in deciding how to share and promote any knowledge system, most knowledge management institutions and programmes are faced by a number of challenges: firstly, is how to balance the collecting and the connecting dimensions of knowledge. The connecting dimension “involves linking people who need to know with those who do know, and hence the need for developing new capabilities for nurturing knowledge and acting knowledgeably. Connecting is necessary because knowledge is embodied in people, and in the relationships within and between communities and organizations. Information becomes knowledge as it is interpreted and made concrete in the light of the individual’s and community’s understandings of the particular context”. In the case of Indigenous Knowledge and innovations, this could be done through establishment of help desks and advisory services (small teams of experts to whom one can call to obtain specific IKS know-how or help in solving a problem). These can be very effective in “connecting people and getting quick answers to questions, thus accelerating cycle time, and adding value for clients”. The experience of different organizations including the World Bank indicate that such services have tended to prove more immediately productive than has the building of knowledge databases, which takes longer to implement (cf. Denning, 1998).

Secondly, is creating the social and cultural process within which knowledge sharing can occur. Hjorth (2003) indicates that in undertaking knowledge sharing programmes, most organizations have found that the nurturing of knowledge-based communities of practice is a *sine qua non* to enabling significant knowledge sharing to take place. These communities are

typically based on the affinity created by common interests or experience, where practitioners face a common set of problems in a particular knowledge area, and have an interest in finding, or improving the effectiveness of, solutions to those problems. “Various tools can be used to strengthen such communities, including the establishment of specific work objectives for the community, the provision of adequate resources and management support to enable it to conduct its activities” (cf. Denning, 1998).

Knowledge Management and Indigenous Innovation Systems

Knowledge management is a useful tool in creating knowledge accountability which can help identify research and development products with the potential for innovation. Knowledge management can serve as a tool for moving local innovations further towards point experimentations and integration of relevant information and ideas coming from others including formal.

Kayumba (2002) stipulates the benefits of IK and low-cost innovations among African local communities: (i) they increase the efficiency of service delivery because Indigenous Knowledge and innovations are a locally owned, based and managed resource. Moreover, while Indigenous Knowledge and innovation research and innovations may be initially more expensive to study and understand, the costs of developing and promoting local innovations can be reduced substantially where local means or community based resources (human and biophysical) are being utilized; (ii) building on IK and innovations can be particularly effective in helping to reach the poor since IK is often the only asset they control, and certainly one with which they are familiar; (iii) utilizing IK and innovations helps to increase the sustainability of delivery services because the IK integration process provides for mutual learning and adaptation, which in turn contributes to the empowerment of local communities. The empowerment of these communities is demonstrated in the impact of their efforts, the application of their own knowledge to address critical community problems, and their effective engagement with assistance from authorities and development agencies.

Knowledge Management and Protection of Indigenous Knowledge and Innovations

Wood (1997) shows that many museums, archives, libraries and cultural institutions within and outside Africa are increasing collecting and holding

large collections of indigenous material objects and documentations that are of cultural or historical significance to local communities. However, because many of these objects and documents were collected without the consent of the traditional owners, the custodial organizations are now facing the challenges of determining ownership, seeking direction from the indigenous owners on the future of such objects and either repatriating them, storing them or exhibiting them appropriately as requested.

Kanungo (2000) shows that new collaborative interactive software tools, high-speed networks and emerging Grid technologies that facilitate communication and the sharing of resources and knowledge between geographically dispersed groups, are being developed to offer an infrastructure that is ideally suited to the implementation of such digital and physical repatriation programs. It is suggested that R&D should be undertaken on how information technology tools and standards can be refined and extended to enable African local communities to preserve and protect their unique cultures, knowledge and artefacts whilst supporting traditional protocols and facilitating better cross-cultural communication and understanding.

3.3 Knowledge Management and African Biodiversity

African Indigenous knowledge about cultivated and wild species is rapidly being lost. Genetic information coded in wild strains and indigenous crop varieties could be stamped out as intensive mono-cultural production favours the adoption of newer, high-yielding crops. Humanity's collective knowledge of biodiversity and its use and management rests in cultural diversity; conversely, conserving biodiversity often helps strengthen cultural integrity and values (Sillitoe, 1998).

World Commission on Environment and Development (1997) adds that documenting indigenous approaches and methods of biodiversity conservation is an essential step toward promoting conserving biodiversity in African local communities. As Africa's population continues to grow, more resources are demanded. Many people are beginning to possess the Western views of affluence, and more attention is focused on how to obtain the greatest amount of resources without thought for how extraction will impact the future.

It is understandable that an increase in population is demanding more commodities, but with careful management of indigenous natural resources,

a sustainable balance can be achieved. African local communities have developed cultural belief systems that demonstrate an immense knowledge and respect for the natural environment. These systems contain rules that define how the environment should be treated. Rituals, ceremonies and prohibitions all regulate the use of natural resources and accomplish the goals of resource management and a balanced ecosystem. Understanding this knowledge and using it to solve environmental problems is incumbent on us.

Africa's unique biological diversity is characterized by the variety of genes, species, ecosystems and ecological processes occurring in the country - is an asset of international, national and local value and significance. Her rivers and wetlands, mountains and plains, estuaries and oceans, and magnificent coastline and landscapes contain an exceptionally rich and varied array of life forms which are integral to the existence of all South Africans, and upon which the national economy is fundamentally dependent. The remarkable richness of Africa's biodiversity is largely as a result of the mix of tropical and temperate climates and habitats occurring in the country.

African countries who are a Party to the Convention on Biological Diversity (CBD) are obliged to ensure that the agreement is implemented in accordance with its objectives, i.e. develop national strategies, plans or programmes, or adapt existing ones, to address the provisions of the Convention, and to integrate the conservation and sustainable use of indigenous biodiversity into sectoral and cross-sectoral plans, programmes and policies. The IKS Centre of Excellence, North-West University (South Africa) in collaboration with the Finnish Cooperation project Support to Environmental and Sustainable Development in the North-West Province (SESDNW) located in the North-West Provincial Department of Agriculture, Conservation and Environment (DACE) have made an extensive collection of indigenous knowledge on biodiversity in the North-West province (South Africa) This meant to contribute to the biodiversity protection and management. In this regard important aspects include the following.

3.4 Interfaces between IK and Community Innovation Systems with Modern Science & Technology for Sustainable Community Livelihood

"African indigenous knowledge systems (IKS) are increasing becoming an integral part of the global body of knowledge". Warren (1993) states that

indigenous knowledge systems can be compared and contrasted with the counterpart global knowledge system, with a view to uncovering mechanisms for evaluating the strengths and weakness of each system. “This interactive flow has already resulted in mutually beneficial exchanges of knowledge that have enhanced the capacity of the formal research system to solve priority problems identified within local communities. Both multilateral and bilateral donor agencies are now recognizing the role of indigenous knowledge in sustainable development including the promotion of public health care” (cf. Kaya in Report of the 2005 ATPS Annual Conference 2005).

Anand (2005) explains how in most African countries modern, western systems of thought and life, exist alongside African indigenous knowledge systems. Both systems can be found in all sectors of society, including agriculture, public health, political organizations, conflict transformation, culture, education, technology and even lifestyle. As a result of its affordability and easy access in most local communities, indigenous knowledge and innovations continue to provide the building blocks for development and public health in most African countries, while seeking cooperation with modern knowledge for the mutual benefit of the two systems (cf. Kaya in Report of the 2005 ATPS Annual Conference 2005).

A number of examples have been mentioned in the past sections which demonstrate the efforts made in various parts of the continent to interface African indigenous knowledge and modern knowledge systems for sustainable community livelihood. These included the Tanga AIDS Group (TAWG) in Tanzania as a partnership between traditional healers and biomedical practices to combat HIV/AIDS; the training of traditional healers in diagnosing HIV/AIDS from a western perspective at the Nelson Mandela Medical (University of Zululand); in Northern Malawi, local farmers practicing ethnoveterinary work in collaboration with research and academic institutions such as Bunda College of Agriculture (University of Malawi) and the National Herbarium in Zomba for botanical identification of the indigenous medicinal materials.

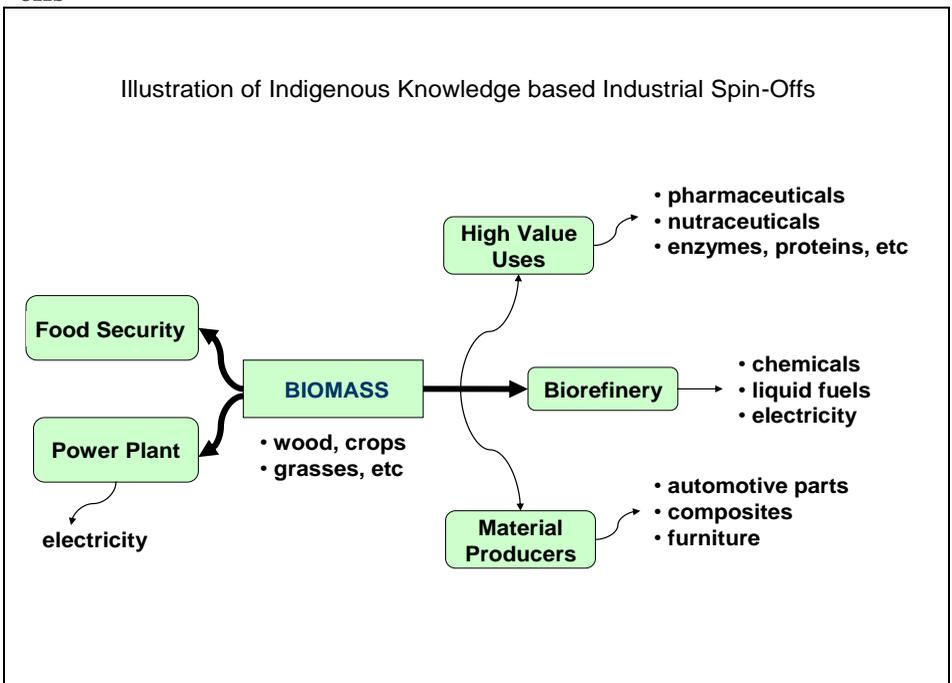
They collaborate on trials that can verify the claims of the farmers by using western scientific methods. The main goals of the collaboration are to promote the complementary use of indigenous and conventional veterinary medicine for sustainable livestock production, and to promote the conservation of medicinal plant resources. The following section stipulates the various indigenous knowledge and innovation based sectors as spin-offs

of the combination of Knowledge management, indigenous knowledge and innovations, biodiversity and the interface between indigenous knowledge and innovations and modern science and technology (S&T):

Indigenous Knowledge-Based Economic Sectors

A combination of Knowledge management, indigenous knowledge and innovations, biodiversity and the interface between Indigenous Knowledge and innovations and modern S&T will culminate into the development of a variety of economic sectors for sustainable development and community livelihood. These sectors include food security, environmental management, energy needs: pharmaceutical, food and nutraceuticals, bio-technology, chemical, energy, automotive parts, composites, furniture, etc. The figure 1 above provides an example of some of the spin-off industries.

Figure 1: Illustration of Indigenous Knowledge –based Industrial Spin-offs



Source: Adopted by the authors from the Michigan State University Slides

Figure 3 demonstrates the potential of indigenous knowledge based industrial spin offs when Indigenous Knowledge and Innovations are interfaced with biological resources and modern science and technology (S&T). Key to the process is the sustainable conservation and utilization of the community resources to the benefit of the community knowledge holders. Although Figure 3 focuses on the output industries, the downstream industries such as the pre-harvest based industrial activities are equally important in the creation of wealth. For example, the global sale of prescription drugs for 2006 amount to US\$ 600 billion. At least 60% of these drugs originated or were derived from natural products (UNDP, 2007).

3.5 The Role and Relevance of National and Continental Systems of Innovation in Remobilizing African IK and Innovations for Sustainable Development

In this chapter, systems of innovation refer to a network of research universities and science councils in the continent involved in research and innovation. This may include Centres of Excellence in different fields of S&T. Despite the fact that these institutions have involved in R&D in various fields, their contribution to the remobilization of IK and innovations for sustainable development and local community livelihood in the continent has been minimal (World Bank, 2004).

Therefore, for these institutions to make a meaningful contribution to the promotion of IK management there is need for them to undergo a paradigm shift. Furthermore, in spite of the fact that basic research is the foundation of R&D, the need for increased applied research in the innovation cycle is crucial in the transformation of knowledge into products for the market. In this regard, the mission of the systems of innovation including Higher education institutions and research councils in Africa is to take a proactive part in the management of indigenous knowledge and innovations, i.e. where this knowledge is to be preserved, disseminated, extended and utilized at all spectres of community lives. This could be demonstrated through:

- Research/Public service/social advancement
- Pursuit, promotion and dissemination of knowledge.
- Provision of intellectual leadership

- Human resource development
- Promotion of service to the community
- Discoveries of innovations for patenting and development
- Partnering with industry in creating enterprises based on resultant scientific innovations.

The systems of innovation institutions are seen in Africa as think-tanks for their countries development efforts. They are to help provide local solutions to what is commonly called local problems. Local problems have their uniqueness drawn from local experiences and knowledge systems. Therefore, managing local or indigenous knowledge for developmental solutions is imperative. They are also perceived to have a role to play to influence a better standard of living for the society.

The involvement of these institutions in the sustainable development of the surrounding communities is a necessary condition for their relevance. It is important that these institutions see themselves as part of their local communities to avoid the charge of ivory towering. Through their extension and outreach services, they continue to establish dialogical relations with the government, local communities and the corporate world (Shibanda, 2006).

4. Conclusion

This study demonstrated the IK and community innovation systems have an important role to play in the sustainable development of the continent. They need to be promoted and supported at both national and continental levels. However, the chapter also revealed the minimal contribution which has been made so far by national and continental institutions of innovation in the remobilization of IK and community innovations for promotion of sustainable development and community livelihood in Africa. It is argued that if these institutions are to be relevant to the sustainable development of continent they need to undergo a paradigm shift and take proactive position in the remobilization, management and promotion of IK and community innovations. They need to be actively engaged the developmental activities and challenges of their surrounding communities for their relevance to be acknowledged and appreciated.

Moreover, in order for IK and community innovations to be available for use in promoting sustainable development and generating wealth in local communities, they need to be fully documented, stored shared through

advocacy, capacity building, networking and partnership building including incorporation in the school curriculum. The role of ICT in the promotion, conserving, protecting and sharing of IK and innovation for sustainable development and community livelihood is increasing being recognized. In order to avoid the duplication of efforts the chapter recommends the importance of creating networks and partnerships among the different IKS stakeholders in the continent. The specific objectives of these networks and partnerships will be:

- To develop continental IK research protocols and ethnics for promoting the role of IK and community innovations in the development of knowledge economy in Africa;
- To establish databases of IK related R&D in African academic and research institutions in order to ascertain potential areas for patents, further research, commercialization, curriculum development, building teaching, R& D networks and partnerships, policy development, etc.;
- To develop strategies of social marketing knowledge management related to IK and community innovations. This will involve:
 - profiling IK holders and practitioners by elevating them and their knowledge;
 - facilitating IK holders and practitioners to provide guidance on knowledge management issues related to IK such as access, protocols, registration, benefit sharing, protection, etc.;
 - working with and sensitize local communities on sustainable use of community-based natural and cultural management systems and structures for IKS development.
- To interrogate the implications of IPR as a tool of protecting IK and innovation in Africa;
- To develop strategies of harmonizing policies and legislative frameworks in the continent for protecting and promoting IK innovation for sustainable development; and
- To promote networks and partnerships on IPR related to IKS issues.

All the recommendations hinge squarely on the premise that indigenous

knowledge and innovation systems will only be significantly important if they contribute to sustainable and improved standard of living of the people.

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The Role of Information Communication Technology in Promoting Indigenous Knowledge Systems for Rural Development



Keamogetse Seitatolo
Emile Matike

Using a case study conducted in Dibate village near Mafikeng, this study demonstrates the importance of Information and Communication Technologies in the promotion of IKS for rural development. Embracing ICT for rural development is no longer a luxury but has become an important and urgent need for all African communities. However, the concept of ICT needs to be understood in a broad context going beyond modern physical computer equipment, software and networks that are often misunderstood to be designed for the elite and urban population. This is also useful for traditional and rural techniques of gathering, processing and disseminating information. ICT could become a very powerful enabler for the exchange of IKS because local communities can participate in community-to-community exchanges, and advance their own development by sharing experiences. Some recommendations are made.

Keywords: Information Communication Technology, Indigenous Knowledge Systems, rural areas, North-West province

Introduction

According to Bagama (2008), the concern for equity is a key principle required for any developing society and this means that comprehensive, relevant and timely information should be accessible to all individuals in

order to realize real social, economic and political development impact. This is elaborated by Beaumont and Ewan (2003). It is reiterated that all African communities need to “set up strategies that enable them to collect, process, store and disseminate information that has potential to shake up hidden and untapped individual cognitive abilities including their indigenous knowledge systems (IKS). The latter is broadly defined as the knowledge used by local people to make a living in a particular environment” (cf. *Best Approaches for ICT in Rural Development*; Warren, 1991).

The above implies that embracing Information and Communication Technologies (ICT) has become an important, unavoidable and urgent need for all African communities precisely because it is no longer a luxury. As noted by Berkes (2005) the concept of ICT needs to be understood in its broadest context. One has to go “beyond modern physical computer equipment, software and networks that are often misunderstood to be designed for the elite and urban population, but also traditional and rural techniques of gathering, processing and disseminating information by established rural information centres that use oral sensitization and distribution tools that include cinemas, public addresses, community radios and telephony” (cf. *Best Approaches for ICT in Rural Development*).

Berkes (2005) indicates that ICT could become a very powerful enabler for the exchange of IKS because “local communities can participate in community-to-community exchanges, and advance their own development by sharing experiences”. The community-to-community exchanges typically “try to match knowledge seekers with knowledge providers to help empower the participants to envisage other options, increase the knowledge base of all participants, and engage scientist, politicians and IK practitioners on an equal footing”. Tools that can be utilised to facilitate the process of IK exchange for rural development include the following (cf. *Indigenous Knowledge for Development n.d.*).

- Video and radio broadcasts in local languages could disseminate IK practices;
- Using story telling techniques, especially in rural areas;
- Electronic networking would be most appropriate to establish exchanges among civil society groups and to link existing local knowledge centres in various countries.

- Tele-centres (village knowledge centres) could help make knowledge flow from the local communities outward (indigenous practices) and from the global community inward (international practices).

Alternative digital technologies and environments for recording and storing data need to be compared and evaluated. Because of the oral tradition of IK and innovations, audio-visual digital recording such as digital video cameras and audio recorders could be primary tools for capturing techniques, practices, stories, languages, songs and dances. Scanners are being used to digitize photographs, manuscripts, maps and historic moments. Increasingly 3D scanners are used to generate 3D digital surrogates of physical artefacts in museums and cultural institutions, such as tools, sheets, carving, clothing and baskets (Bukowitz and Williams, 2001).

On the basis of the experience in use of ICT for rural development in Uganda, Baguma (2007) suggests that for every civil society organization, promoting the access and use of ICT in rural communities, it needs to be very keen on two core issues; “appropriate access to ICT4D and the impact derived from this access to transform rural people’s lives positively. Therefore, any ideological and material support to civil society organizations ought to value these core issues”. He goes further to state that “ICT4D implementers need to consider whether basic infrastructure is available and physically accessible to individuals affected by the initiative in respective areas of their operation. In context, it may include the availability of hardware, software, communications networks, stations and Internet services. Added to this, in rural communities, it is also advisable to think very broadly and consider geographic, environmental and contextual challenges that can affect physical access to ICTs. For example, electricity and roads, people with disabilities such as the blind, deaf or physically handicapped face particular barriers to infrastructural access, and inclusion of these groups requires deliberate attention” (cf. Best Approaches for ICT in Rural Development).

“Once physical access to ICTs is addressed, the technology used in the initiatives should be appropriate to local needs and status. Appropriateness can be gauged in terms of power requirements, security, environmental conditions, income levels of population and other aspects of the local community. The technical specifications and usability of the ICTs targeted in the initiative should also be suitable to how individuals need to put technology to use”. A wide variety of modern technologies are now available

to supplement traditional ones, and it is important to think broadly about these options. More appropriate ICT options may include handheld computers and public access points or telecentres, as well as innovative uses of mobile phones, for Internet access, television, and radio. Solar energy and other alternative power sources, together with battery-powered portable devices and wireless connectivity offer greater possibilities for rural access” (cf. Best Approaches for ICT in Rural Development).

Mathias (2002) argues that in most rural areas of Africa including South Africa, there are very limited number of platforms where IK could be captured, stored and disseminated to prevent its erosion and exploitation. However, the whole process of collecting, applying, protection and disseminating of IKS, will require the full participation of the local people themselves as the custodian of IKS. Indigenous knowledge is still an underutilized resource in the rural development process of Africa and South Africa in particular. Learning from IKS by investigating first what local communities themselves know and have, can improve the understanding of local conditions and provide a productive context of activities designed to help these communities. On the basis of the above discussion ICT can be an important vehicle in this process (cf. Indigenous Knowledge for Development n.d.).

However, Croy (2003) warns that ICT utilisation for promoting IKS within and outside the local communities needs to take place in a culturally appropriate way by aiming to strengthen indigenous cultures and identities. They further stress that, although local communities have the right to use and access to all relevant ICT applications, these applications cannot replace traditional methods of transmitting knowledge and cultural heritage of local people from generation to generation. Indigenous cultures have their own customary rules and regulations on communicating, sharing, using and applying traditional knowledge. Furthermore, not all of the IK and cultural heritage can be digitalised. Therefore, digitalisation can only take place in a culturally appropriate way in compliance with indigenous cultural protocols and obligations and customary laws.

Beaumont and Ewan (2003) add that the digital divide affects African local communities no matter where they live. There is therefore a need for them to access ICT application. They should know that they have the right to bridge the digital divide on their own terms. The information society must serve the needs of local communities. Its implementation must lead to

improving the quality of their lives and identities and thus promote cultural diversity.

In like manner, Adam (n.d.) states that “while some people still remain sceptical about the direct contribution of ICTs to IK transfer and poverty alleviation, there are signs that ICT can contribute to development goals and to the exchange of IK. Proper application of ICT is essential to stimulate the flow of IK and incorporation of modern scientific and technological understandings of traditional knowledge. This requires an understanding of the main characteristics of IK and defining tools, applications and services that meet those characteristics (cf. also Richard 2006 and Boisot 1998).

World Bank (2005) adds that there is nothing wrong in interacting modern scientific knowledge with indigenous scientific knowledge. He raises the concern that South Africa had not been able to add value to its indigenous biodiversity in the past because it lacked the technology and human resource capacity. Therefore, the government should guarantee its people access to the media and assist in the development of indigenous knowledge for sustainable community livelihood.

“Multipurpose community centres are increasingly becoming the main venues for organizing Indigenous Knowledge (IK) and disseminating it using digital technologies. Access to IK databases, audio and video footages can be made to members of communities through tele-centres. Technologies and tools ranging from speech to text, mobile phones, PDAs, community radios, etc can be installed and tried out for suitability for sharing of IK. Community centres that may have radios can also serve as a hub for broadcasting and exchange of information among members. Participatory videos and radio programming initiatives can be launched at community centres to capture IK and exchange within and beyond the communities” (cf. Adam n.d.; Brooking, 1996).

“Experience of knowledge for development initiatives has shown that a vast array of tools can be used to facilitate the sharing of knowledge. Mechanisms such as community of practices, peer assists, synchronous and asynchronous communications are important to improve the exchange of IK”. Interest and awareness of the value of IK, particularly its potential contribution to sustainable development, is increasing at a time when such knowledge is being threatened as never before. There are some initiatives underway that try to capture and share IK (cf. Adam n.d.; Blair, 1997).

Moreover, an understanding of IKS can increase responsiveness to clients. Using ICT to adapt to international practices to the local setting can

help improve the impact of sustainability of development assistance. Furthermore, sharing IK within and across communities can help enhance cross-cultural understanding and promote the cultural dimension of development (cf. Indigenous Knowledge for Development n.d.). More and more communities and organisations around South Africa are realising the value and the significance of IK and the importance of promoting, using and protecting IKS (Carter, 1999).

This is based on the increasing realization that the vision of a truly global knowledge partnership can only be realised if the poor participate not only as users of knowledge but also as contributors to knowledge. The global knowledge conference held in Toronto in 1997 emphasised that urgent need to learn, preserve and exchange knowledge embodied in successful local practices so that they could be replicated elsewhere and applied in the development process. Academic research has documented the role of IKS in sub-Saharan Africa and especially in the lives of the poor. There are however, few known effective instruments and methods for the capture and dissemination of IK and local practices (Clegg, Stewart and Palmer, 2001).

This chapter which is based on a study conducted in one village called Dibate near Mafikeng in the North-West province of South Africa, focuses on the role of ICT in promoting indigenous knowledge systems for rural development in South Africa was based on the argument that IKS and innovations are still an under-utilised resource for rural development in South Africa. The North-West province is one of 9 provinces of South Africa. Sixty five percent (65%) of the Province is rural. Agriculture is the main economic activity for the majority of the rural communities who depend on their indigenous knowledge systems for survival in food security, natural resource management, conflict resolution, health, etc. The chapter discusses the following aspects: the socio-economic and demographic characteristics of respondents; knowledge and perceptions of respondents towards utilization of ICT for the promotion of IKS and rural development.

Methodology

This was a case study of the knowledge and perceptions of rural communities in the North-West province (South Africa) on the role of ICT in promoting IKS for rural development with special reference to the Dibate village near Mafikeng. The research used a case study and participatory approach in order to have an in-depth understanding of the issues associated with the research problem. Yin (2009) defines a case study as a research methodology

common in social science based on an in-depth investigation of a single individual, group, or event. Case studies may be descriptive or explanatory.

The unit of analysis was Dibate village near the North-West University (Mafikeng Campus) because of its proximity to the University where the researchers are located. The selection of the study area was appropriate to reduce research costs and it was also easier for the researchers to interact with the study community. The researchers were also conversant with the cultural values of the study community including the local language.

Commanda and Freeman (1999) explain participatory research, its advantages and characteristics by stating that participatory research attempts to negotiate a balance between developing valid general sable knowledge and benefiting the community that is being researched and to improve research protocols by incorporating the knowledge and expertise of community members. For many types of research in specific communities, these goals can best be met by the community and researcher collaborating in the research as equals. According to them this research approach is characterised by the following aspects:

- Three primary features of participatory research include collaboration, mutual education, and acting on results developed from research questions that are relevant to the community;
- Participatory research is based on a mutually respectful partnership between researchers and communities;
- Partnerships are strengthened by joint development of research agreements for the design, implementation, analysis, and dissemination of results;
- Results of participatory research both have local applicability and are transferable to other communities.

In this study IKS practitioners (traditional healers, farmers, traditional leaders, etc.), both male and female, were actively involve in the whole research process, that is, from the research design, implementation including selection of study cases, interpretation of the research results, etc. A purposeful sample of 50 community members, mostly community knowledge holders and IKS practitioners of 45 years of age and above, comprising of 20 men and 30 women participated in the study. The participation of women in the study was very important because they were known in the community to be the custodians of indigenous knowledge with respect to agriculture, health

and natural resource management. Tatauranga (2006) defines a purposive sampling procedure as a non-probability sample selection method where respondents are selected according to a personal and/or subjective judgement about which members of the population would be the most representative.

Secondary sources such as libraries, journals, internet sources, newspapers, conference proceedings and past research documents were consulted. A questionnaire was administered to the sample to collect quantitative data such as the socio-economic and demographic data of the respondents. Qualitative research methods such as key informant interviews, focus group discussions and participant observations formed the core of the data collection methods. A combination of structured and semi-structured interviews was used to collect data.

Key (1997) explains qualitative research as a generic term for investigative methodologies described as ethnographic, naturalistic, anthropological, field, or participant observer research. It emphasizes the importance of looking at variables in the natural setting in which they are found. Interaction between variables is important. Detailed data is gathered through open ended questions that provide direct quotations. The interviewer is an integral part of the investigation. This differs from quantitative research which attempts to gather data by objective methods to provide information about relations, comparisons, and predictions and attempts to remove the investigator from the investigation.

In these study key informants such as community elders, teachers, development workers, were interviewed at all levels of the research project as a means to gain in-depth qualitative information. This approach is a traditional method used by social scientists including anthropologists, for extracting community knowledge through well-placed individuals in the study community. It is part of the ethnographic approach, often being used in situations where access to official records or data is weak or non-existent. Where official records exist, it is used as a means to gain further insight by questioning key people about a specific social problem.

Focus group discussions were conducted with randomly selected group of 6-10 community members. A focus group discussion is a semi-structured interview in which the discussant knows in advance the topics to be covered. The people included were known to have been involved in specific experiences related to the research problem. Focus group discussions are different from other types of group interviews in that they focus on a particular topic and they rely on group dynamics in order to generate data.

The interaction is mainly between group members themselves and not between the members of the group and the interviewer. Group interaction is used in this type of research to generate data and as a source of data analysis. The assumption is that there is an interaction that is productive in widening the range of responses, in activating forgotten details of community or cultural experience/knowledge and in releasing inhibitions that are part and parcel of interviews with individuals.

Data collected was both quantitative and qualitative. Data Qualitative data in the form of audio taped interviews were transcribed and translated from Setswana into English. Interview and participant observation notes were typed and a content analysis conducted.

Berelson (1990) defines Content Analysis as “a research technique for the objective, systematic, and quantitative description of manifest content of communications”. It is used to “determine the presence of certain words, concepts, themes, phrases, characters, or sentences within texts or sets of texts and to quantify this presence in an objective manner. Texts can be defined broadly as books, book chapters, essays, interviews, discussions, newspaper headlines and articles, historical documents, speeches, conversations, advertising, theatre, informal conversation, or really any occurrence of communicative language. To conduct a content analysis on a text, the text is coded or broken down, into manageable categories on a variety of levels – word, word sense, phrase, sentence, or theme – and then examined using one of content analysis’ basic methods: conceptual analysis or relational analysis. The results are then used to make inferences about the messages within the text(s), the writer(s), the audience, and even the culture and time of which these are a part. For example, Content Analysis can indicate pertinent features such as comprehensiveness of coverage or the intentions, biases, prejudices, and oversights of authors, publishers, as well as all other persons responsible for the content of materials” (cf. Content Analysis n.d.).

“Content analysis is a product of the electronic age. Though content analysis was regularly performed in the 1940s, it became a more credible and frequently used research method since the mid-1950’s, as researchers started to focus on concepts rather than simply words, and on semantic relationships rather than just presence” (cf. Content Analysis n.d.). In this study validation checks were conducted through all phases of the research to ensure the highest level of data accuracy. Information which was unclear or missing was

clarified or collected by returning to informants and reviewing issues and concepts.

Vestra (2003) defines quantitative data as information based on numbers or statistics that describes programs, activities and populations. The data come from closed-ended questions, random samples, counting, etc. In this research study quantitative data from the questionnaires were checked, coded and were analysed using SPSS/PC+.

The Socio-Economic and Demographic Characteristics of Respondents

In order to get the socio-economic and demographic characteristics of the respondent community members, they were asked through a questionnaire to indicate their age groups, educational levels, occupational status, etc. The results are discussed below: An examination of the age group distribution of the respondents was important for the study because in most indigenous communities, IK is held by elderly people due to their experiences in life. The study found the majority of the respondents (70% males and 60% females) were in the age group of 40 years and above. Interviews with them showed that they were aware of the various types of ICT such as the radio, Television, internet but had little access to most of them except the radio.

The study was interested in the educational levels of the respondents because usually educated people have the ability to express in detail various views on the importance and use of modern technologies such as ICT. The findings revealed that the majority of the respondents (80% males and 65% females) had less than a matric qualification.

However, interviews with them showed that in spite their low level of formal education and inability to use ICT facilities such as computers, internet, e-mails, etc. they were quite aware of the various types of ICT. The major constraint was also the fact that they could not afford to buy the ICT facilities such as computers or Television sets. It was on the basis of this that the study wanted to establish the occupational status of the respondents. The emerging results indicate that the majority of them (50% males and 60% females) were unemployed. The common type of ICT owned by the respondents was the radio because it was affordable.

Knowledge and Perceptions of Respondents towards Utilization of ICT for the Promotion of IKS in Rural Development

As already stated in the introduction, ICT is an important tool for promoting and sharing knowledge systems for rural development and sustainable livelihood. The study asked the respondents through face-to-face interviews and focus group discussion their own perceptions towards the use of ICT for IKS promotion in rural development. The following aspects were discussed: knowledge of the respondents on the different forms of ICT that exist in their community; respondents views on the different types of IKS that need to be promoted by using ICT including their views on the importance of IKS for rural development; their views on types of ICT that could help in the promotion of IKS; and the limitations of ICT in the promotion of IKS for rural development.

Knowledge of the Respondents on the Different Forms of ICT that Exist in their Community

The respondent community members were asked through a questionnaire to indicate the different forms of ICT they knew were commonly used in the community. The results are discussed below:

The study found that although different types of ICT existed in the community not all respondents had knowledge about those ICT facilities which could help in promoting and disseminating IKS for rural development. The study first identified the different types of ICT known to the respondents in the study community. Majority of the respondents (90% males and 85% females) identified the radio as the most common ICT facility available in the community. Interviews with respondents showed that the radio was most affordable and widely used in the community. This was followed by the TV.

Concerning the type of ICT facility which could be appropriate for disseminating IKS for rural development, the majority of the respondents (60% males and 65% females) viewed the radio as a faster type of ICT to promote IKS for rural development because people have access to the radio than internet or mail which requires availability of computers and electricity. The study wanted to establish from the respondents the types of IKS in their community which could be promoted through the use of ICT. The majority of the respondents (92% males and 95% females) wanted indigenous knowledge on health care practices to be promoted through ICT, especially

through the radio. This was because the radio was the most popular source of information and technology in the poor and illiterate communities such as Dibate village. Interviews and focus group discussions with respondents indicated that there was a wide use of indigenous knowledge about agricultural practices, health and medicinal practices in the community that needed to be promoted for rural development and sustainable community livelihoods. Most of this knowledge had been neglected and was not known, especially among the young people.

The study also asked the respondents' opinions on the importance of IKS for rural development and sustainable community livelihood. The majority of the respondents, both male (78% and female 82%) acknowledged the importance of IKS for rural development and sustainable community livelihoods. Most of the people in the community depended on indigenous knowledge for survival, especially in the absence of adequate modern services and due to high unemployment people cannot afford modern services from outside the community.

Also, on the basis of the study, this chapter discusses from the respondents' perspectives the limitations of ICT in promoting IKS for rural development in the community. The majority of the respondents, both male (66%) and female (79%), indicated the following as limitations of ICT in promoting IKS for rural development in the community and the country at large: Access to modern ICT facilities such as computers, TV, internet, etc. is limited due to educational, financial and language constraints; not all aspects of traditional knowledge can be captured as artefacts using digital technology; and those with the knowledge may not be willing to share; and the collection of information from diverse sources is often time consuming and a costly process.

By way of winding up the discussion, the centrality of equity and the relevance of comprehensive, relevant and timely information accessibility to all individuals in order to realize real social, economic and political development impact cannot be overemphasized. All African communities need to have the opportunity to set up strategies that enable them to collect, process, store and disseminate information that has potential to shake up hidden and untapped individual cognitive abilities including their indigenous knowledge systems (IKS). This study notes that embracing Information and Communication Technologies (ICT) is "no longer a luxury but has become an important, unavoidable and urgent need" for all African communities (cf. Best Approaches for ICT in Rural Development).

However, “the concept of ICT needs to be understood in its broadest context, i.e. going beyond modern physical computer equipment, software and networks that are often misunderstood to be designed for the elite and urban population, but also traditional and rural techniques of gathering, processing and disseminating information” (cf. Best Approaches for ICT in Rural Development). ICT could become a very powerful enabler for the exchange of IKS because local communities can participate in community-to-community exchanges, and advance their own development by sharing experiences. The community-to-community exchanges typically try to match knowledge seekers with knowledge providers to help empower the participants to envisage other options, increase the knowledge base of all participants, and engage scientist, politicians and IK practitioners on an equal footing.

Conclusion

The chapter revealed status and importance of ICT for promoting IKS in the study community. The respondent community members, both male and female, were aware of the importance of ICT in rural development and sustainable community livelihood. They were also aware of the different types of ICT which could be used to promote IKS for rural development. On the basis of the above challenges and prospects, the following are recommended: the findings of the study should be published to contribute new knowledge and highlight the challenges to researchers, development agencies, policy makers and other stakeholders including the wider public on the importance of ICT for promoting IKS in rural development and sustainable livelihood; establishment of IKS centres equipped with ICT facilities for documenting, storage and dissemination of IKS; government departments such as Departments of Science and Technology and Arts and Culture should work closely with communities including knowledge holders in promoting IKS for rural development including community awareness, using ICT; community members should be trained on the use of ICT through workshops and seminar to promote IKS.

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The Distorted Past Knowledge Systems: A Paradoxical Case of Shona People of Zimbabwe



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Knowledge generation is the preserve of every human being. The contextual surrounding needs propel people to be innovative within their reach. The Zimbabwean elders long before colonization in 1890 have devised knowledge systems that encompassed all spectrums of human survival. They realized means and ways of providing for their basic needs. This article argues that their development was choked by colonization and its imposition of “finished” products. The resultant denigration of the local forms of knowledge systems led to their loss of confidence in works of their own hands. This ethnographic participatory study notes that the Shona people’s indigenous knowledge systems provided pragmatic medicinal, transport, agricultural, political, counselling and knowledge dissemination mechanisms, that met the needs of communities. The social system ensured that the knowledge systems were communally owned and passed on through the generations in the medium of the mother language. To this end, this chapter argues that African people in general and the Shona people of Zimbabwe in particular were a developed and developing people long before their traumatic and debilitating contact with the West.

Keywords: Shona people’s indigenous knowledge systems, medicinal benefits, development, distorted past knowledge

The Shona People

In Zimbabwe, Shona is the largest indigenous linguistic family with Ndebele, Tonga and Venda languages having come from outside in the nineteenth

century (Ki-Zerbo and Niane, 1997:212). The Shona language dominates in seven of the ten provinces of Zimbabwe namely Mashonaland East, Mashonaland Central, Mashonaland West, Harare, Masvingo, Manicaland and Midlands. The latter province is treated in this study as a Shona-speaking area because the language dominates in Zvishavane, Kwekwe, Shurugwi, Gokwe, Mberengwa and Gweru districts, among others (Makondo, 2009). Conversely, Ndebele, the second most popular local language, dominates in Matebeleland South, Matebeleland North and Bulawayo. Shona language is divided into western Shona varieties, which are Lilima, Kalanga and Nambya found in western Zimbabwe and eastern Botswana. Central Shona varieties, namely Karanga, Korekore and Zezuru are found in the central mainland of Zimbabwe while eastern Shona varieties namely Hwesa, Barwe, Manyika and Ndau are found in Eastern Zimbabwe and Western Mozambique (Chebanne *et al.* 2006:7). Today, the name Shona is used to cover a great number of related dialects spoken by people in Zimbabwe, Zambia, Botswana, Mozambique (Fortune, 1969:55) and South Africa. Therefore, the findings of this study will be representative enough of the Zimbabwean scenario as Shona is the language of the majority.

Discussion

The term development is best understood in relative terms as it is predominantly a comparative term. Development is comparative as is assumed by remarks like “x” is developed thereby implying that “b” is not. The term development connotes a particular powerful paradigmatic perception hence today the world seemingly is divided into the first, second and third world countries (Makondo, 2005). *Oxford Dictionary* (1995:318) defines “develop” in this way:

To grow or cause somebody or something to grow gradually or more organized. Development is the action or process of developing or being developed.

A denotative or connotative reading of this meaning or develop shows one that African communities, especially the Shona people of Zimbabwe, a landlocked country in the southern part of Africa were and are a developed people in their own right. The realization that the Shona parents gave birth and raised their sons and daughters amidst such trying times underscores

how developed they were. The system master-minded by the colonialists did not allow them to give their best care that their children deserved but never the less they soldiered on. The European colonial system did not recognize them as humane as it was bent on denigrating them at all costs. They claimed that the African had no worthwhile knowledge systems as the later were viewed as living, in the words of Rodney (1972) “in the benighted region”. The African was an empty vessel, so they arrogantly presumed. The situation was deliberately made unfavourable but they had no option beside the option of soldiering on. They took untold risks to ensure that their children grew with their Africanness imbued in them against all odds.

African Language as the Medium of Indigenous Knowledge Systems

The Shona people’s founding fathers ensured that their children speak the language of their mothers, fathers, grandmothers, grandfathers, nephews, aunts and all around them. The cries of the young ones were in the language everyone around them would hear. His or her laughter was in his/her mother’s language and everyone would know that the child was laughing or was crying. The language they had adopted from their parents enabled them to communicate whatever they wanted and in response the givers of the language understood them. The meaning of the terms “denotation” and “connotation” were clear to them even though they were not schooled according to the standards brought by the colonizers in 1890.

Language in its multiple forms was understood without Doctors and Professors of today having inducted us into these genres of communication, the verbal and non- verbal. The numerous forms of body language they were able to decode and use in our communities before the interference of the westerners who dismally failed to understand their developed forms of communication. The child’s cry, the way he/she sucked milk from the warm breast of the mother, the firmness of the child’s grip, the coldness or warmth of his/her body, the way he/she crawled, the way he/she spent the night, the side he/she preferred to sleep with, the kind of look, the colour of eyes, the manner he/she urinates, the frequency with which he/ she urinates/ defecates to mention but a few were all forms of communication the Shona parents understood as they also were exposed to these at their tender ages. The ability of the communities to generate their own knowledge systems has been noted by Freire (1972), among others who reckon that it is a myopic

perception to equate knowledge to that offered in books and by schools, perceptions promulgated and sustained by the westerners who regard the educated as only those certified by the system they invented.

On the contrary, the Shona parents, as is true to many African communities, with the support of the entire community structures led by grandfathers, grandmothers and aunts, among others introduced the young ones to diverse modes of communication mostly by their way of demonstration. They socialized their children through subtle ways just as they had been taught by their fore parents. As they were masters in these disciplines, they talked or lectured to their children depending on their age groups, a demonstration that the discipline of psychology was not foreign to the African indigenous knowledge system. The leaders and those tasked with the responsibility of disseminating knowledge to children were proven experienced individuals in the form of *vanasorojena* (old grandmothers and grandfathers) (Kahari, 1997). *Vanasorojena* had learnt that the best way of ensuring that one does not forget life defining concepts was by demonstrating the “what” and “how” to their recipients of all ages. They had realized long before the advent of colonialism that rhetoric does not pay. Sadly, though, this vibrant Shona means of knowledge generation was not spared the wrath of denigration mastered-minded by a group of people that claimed, to use the words of Tidy and Leeming (1980) in reference to the missionary David Livingstone “to have discovered a people” in Zimbabwe who had their own ways of survival that met all their needs.

Medicinal Acumen

Yes, the Shona parents were not schooled to today’s western standards but they had learnt and perfected the art of survival. They had learnt through trial and error to tame their jungles and environments. They had come to terms with venomous snakes as they had devised first aid approaches and medicinal concoctions to treat snake bites through the *kusunga* (binding the poisoned area so that blood does not follow to contaminate the entire body system). The *kurumika* (a way of extracting poison from the body) system was used also to heal swollen parts of the body. In addition, Mapiye Gwezera of Samuriwo village in Hwedza, Mashonaland East province aged 83 years, submits that the Shona people identified some herbs that chase snakes away in trees like *mudzinyanya* (a tree that chases snakes away), discoveries which helped them to live everywhere under the sun without fear of snake

bites. These discoveries speaks volumes about the extent to which indigenous knowledge systems are pragmatic, ecosystem friendly and within reach as well as empowering as it recognizes the innovations of community members who had learnt to come to terms with nature's. Maybe they drew their inspiration from the biblical pronouncement that men was given dominion over everything that the Lord God had created as reported in Genesis 1:28,

And God blessed them [Adam and Eve], and God said unto them, be fruitful, and multiply and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth (Thompson 1988, King James Version).

It therefore seems prudent that this Biblical injunction propelled humanity to use their full potential to discover the art of survival using nature's resources.

As a result, the Shona people devised various ways of healing themselves in the event that they had fallen ill or sick. They learnt that the various trees and grasses scattered in the terrain and bushes were meant to be herbs to humanity. They experimented with several of these trees, grasses and the results, in most cases were favourable as men emerged victorious with a prolonged life span. They developed gradually this art and with time they had established systems to curb various illnesses. Physical disorders like headaches, eye problems, earaches, stomach-aches, backaches you name them they now had cures. Serious complications like broken arms and legs were also attended to with remarkable successes. Mbuya Matambo of Nhema area in Shurugwi, Midlands province aged 78 years observes that such disorders were manageable.

Informants further pointed out that the victims were given the equivalence of first aid today by almost anyone who was nearby and later were referred to those who were courageous enough who could straighten the affected parts, would improvise what we now have as the plasters, would smear some herbs meant to quicken healing at the same time reducing the levels of pain just like what the various pain killers do today. Counselling services were availed and the patients were expected to have enough rests, an indication that they had discovered the healing power that rest has. In addition, the patients were prescribed to eat "good" food. The "good" food was the natural food spiced with different medicinal herbs meant to quicken

the healing processes. If the wounds required some dressing, *gavakava* (aloe), *nhundurwa* (a tree or shrub that bears fruits like tomatoes) and *mudzingahonye* (herb that prevents a wound from rotting) and some concoction were drunk as syrup or smeared on the affected part and they helped defer or prevent “rotting” of the wound. The informants pointed out that these interventions managed to keep these wounds fresh. At most, this noble service was rendered for no pay because our people, as informants disclosed, had not yet been “corrupted” to the current levels by the money economy were medical practitioners of today are prepared to have a patient die because he or she have failed to raise the alarming and unabated exorbitant medical fees.

On another note, Mbuya Lillian Matambudza Makondo of Hwedza in Mashonaland East province aged 78 years points out that young mothers were inducted on various child rearing skills by their grandmothers, aunts and mothers who were helped by the various medicine people, *vananyamukuta* (midwives), spirit mediums who had been nurtured and groomed by their communities. She cited an example of when a child was sick and the mother was required to wake up early in the morning and was supposed to go into a bush where she ought to literally graze leaves from edible trees and was to chew them and later had to give the resultant juice part to the sick child. The informant’s data was supported by Mbuya Chounda of Seke village in the Mashonaland East province aged 76 years who testifies that this used to work as there were subdued child mortality. The dominant handicap of the method was due to the characteristic immediate failure of the concerned individual to identify the tree or shrub that had the healing medicinal powers. In addition, informants reckon that the “unwashed” goat intestines were ate as they were believed to have some medicinal value because goats eat various shrubs so by eating them, one ends up drawing from the residues thereby one would get healed.

Hygienic Standards

Furthermore, hygienic standards and birth control were safeguarded through indigenous knowledge systems. The Shona people long before their exposure to science as presented by the colonizing system since 1890 had devised their control and balance systems commensurate to the things that were within their reach. Informants note that girls and mothers used sanitary pads of that time and they did not experience untold problems, as some among us want us

to believe. The communal knowledge generation through the diverse experiences individuals went through, provided and inducted girls on how to read their “monthly times” through decoding their physical feelings among others.

The issue of unpleasant smell was also kept under control as they used the natural perfumes to keep themselves pleasant. This was possible because they used “*ruredzo*” and certain trees that produce foam like soap for bathing and washing. Because they used *nhembe* (animal skins) they were also well ventilated and this minimized the production of bad smells.

Yes, toilets came with modernization since 1890 but cholera and its associated diseases were not the order of life amongst the Shona communities. Traditional knowledge systems had established the benefits of proper use of the bush system through which they played a noble role in the sustenance of the ecosystem. The bush system, among others provided the much-needed manure for the enrichment of the land. Now, scientific researchers are proving that human defecations are very fertile and in fact should be used in place of the scarce fertilizers that are also expensive to buy due to the skyrocketing inflation. Other benefits of the bush system toilets are seen in the numerous guava fruit trees. A case in point that testifies to the success of the bush system, in conjunction with other natural seed propagation methods, in spreading guava seeds is the one in Murehwa. The Madondo family in Mukarakate area in Murehwa, Mashonaland East province have a vast guava orchard. They claim that it came about through the use of the bush system. Today they are supplying guavas to Murehwa centre and Mbare *Musika* (terminus) in Harare. Furthermore, due to the proceeds from their work, they had managed to send their children to school and to earn a living using proceeds from this method that the colonizers did not speak any good of.

Birth Control

In terms of birth control, wives together with their husbands devised and were taught of “effective” birth control methods. Some informants disclosed that the husband or wife could jump particular shrubs and have them cease for a while to produce fertile semen or to go through the monthly circles until he/she went and undo the jump. In addition, the wives would use some medicine tied on a string that was put on the waist and that was enough to stop the so-called “unwanted” pregnancy. At times, they relied on their

counting of their days despite them not having been schooled as we are today. Mothers could read seasons and at times they could breast feed for a while. Yes, as in any war casualties are found, at times they failed and ended up with unplanned pregnancies. This explains why the population was kept manageable. In fact, those of our fore parents who had numerous children it was by design not by default.

Knowledge Banks

Through what they had experienced, informants submitted that the Shona people devised means of preserving their knowledge discoveries. They ended up with different genres of proverbs, idioms, ridicules, folktales and poetry just to mention a few. In these genres, one is introduced to untold fountains of knowledge that captured and has stored Shona experiences. It is only unfortunate that the colonial system of the day was so blinded with prejudice that it failed to realize the beauty of these forms of knowledge systems which linked the foregone parents with the living. The resultant development is that the present life is guided by these oral knowledge systems which formed the schools of yesterday. Diverse knowledge was kept in forms of the proverbs, idioms, ridicules, folktales and poetry (Chiwome, 1996). The healing and soothing effect of these genres has been highlighted by the informants. To this end, one informed the researcher of the language and the context that gives rise to these genres. One can only appreciate the acumen and innovativeness of the Shona people and the richness of their indigenous knowledge systems.

Conclusion

This article brought to the fore the centrality of indigenous knowledge systems as practiced and utilised by the Shona people of Zimbabwe. Emphasis has been given to the pragmatic use of this knowledge especially with reference to healthy provisions and how life was made bearable before and in areas where scientific discoveries as defined by the West are non-existent. This means the Shona people devised medicinal products. It also demonstrates and highlights how they curbed population explosion, how they safeguarded hygienic standards and kept their knowledge base. This is only a sample of the importance and uses of indigenous knowledge in our own local communities.

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