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“Indigenous Knowledge Systems: Call for Institutional and Policy Changes”. The Case of Dande Valley in Zimbabwe

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Research Article

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ABSTRACT

Purpose: Indigenous knowledge Systems is a discipline that has received acknowledgement even from United Nations forums. However, the discussion of Indigenous Knowledge Systems practiced in the Dande valley of Zimbabwe is still hazy and unclear and the concerned citizens like academics ,call for an institutional and policy change has been ignored. Though there has been a ministry of Science and technology in Zimbabwe, its focus was mainly on modern science, even though indigenous knowledge was mentioned ,evidence on the ground shows that indigenous knowledge was given very little consideration. It is also the thrust of this paper to point into perspective the adaptive measures taken by the Dande community against climate change using Indigenous Knowledge Systems (IKS). Issues discussed focused on the role of IKS on plant phenology, health and risk reduction, food and security, art natural resource management as they are understood in the Climate change discourse.

Research Design: The study was conducted in the Dande Valley of Zimbabwe which consists of 3 districts of Mashonaland Central Province namely; Mbire, Mount Darwin and Muzarabani. Data for this study were solicited through structured interviews, interviews with indigenous experts, traditional leaders, members of the Dande community; focus group discussion was also used to manipulate the community perception, current practices on adaption to climate change. Information on IKS and climate change was gathered through the participatory approach. The strength in this approach lies in the fact that it involves documenting of real events, recording what people say and observing behaviour.

Findings: Results from the study revealed that many scholars and some academics have a negative attitude towards IKS; however information gathered proved that IKS plays an important role in the Dande community. IKS adaptive strategies against climate change are based on environmental issues like, plant phenology, health and health, and natural resources management. The study established that there is every reason for policy change and implementation in Zimbabwe . To ensure sustainability of the IKS ,the study suggests that institutes of higher learning like Bindura University of Science Education and the Zimbabwe Open University to devise supportive systems that enable collection, analysis, storage information and dissemination of IKS information through a Meta Data base focusing on Dande Valley and other parts of the country rich in indigenous knowledge.

Originality/Value: This study will add to the knowledge base of IKS and climate change in fragile environments and of particular note the Dande Valley in Zimbabwe. The study will also enlighten and provide information to policy makers, researchers, academics and general citizens to make informed decisions. It will also help all interested stakeholders to think seriously on IKS and climate change discourse.

Keywords: climate change, Indigenous Knowledge System, plant phenology, policy.

INTRODUCTION

According to IPCC (2007 Knowledge refers to body of skills and techniques acquired by groups of people or communities over time or generations. Shoko 2012), Action Aid, *(2006) refers indigenous knowledge or traditional knowledge as a body of knowledge and beliefs encompassing technological, economical, education issues accrued over time. Knowledge could be indigenous or scientific and is passed from generation to generation . Its survival

would depend on the few experts found in the community. Manyanhai et al. (2007) acknowledges that IKS differs from the scientific systems though similarities also exist in terms of providing results for example weather forecast.

Indigenous knowledge system is of great importance to new generations who seem to be overwhelmed by the dynamism of the environment for example Climate Change says Mararike (1999). IKS is also an imperative subject to the researchers who seeks to address explanation in the environmental crisis we face today. Understanding indigenous knowledge system also gives the local or indigenous people an urge in terms of empowerment which could be environmental, economics, and cultural. Despite the open contribution or importance of IKS, some sectors have ignored, or downplayed it, referring IKS as traditional outdated knowledge worse, still there is little research that has put more emphasis and focus on climate change and indigenous knowledge system, and absence of this subject in most school curriculum has worsened its position. There is need therefore, to revisit this subject with a constructive intent through advocating for more research which compares the discipline with the modern accepted scientific world.

Colonization, modernization and Globalisation instead of being the pillars of the existence of IKS they have been blamed for the rapid decay of IKS in most African societies. Of late many governments in the developing countries and United Nations organs are recognizing the fact that IKS is the pillar to participatory approaches to development that is sustainable and cost effective for example Bangladesh and Nigeria.

The Study Area

Figure 1: Location map of Dande Valley in Zimbabwe.

Dande Valley is a semi arid region found in Northern Part of Zimbabwe. Dande Valley is demarcated from other parts of the country by Mavhuradonha range, which encompasses three districts namely Mbire, Mazarabani, and Mount Darwin. The VaKorekore community occupy the larger part of the Dande Valley area. The community relies on wild fruits like *Zeziphus Mauritania*, hunting, fishing, butter trading and rain fed agriculture. The Dande valley has three main perennial rivers; Angwa, Hunyani and Musengezi Rivers. The region experiences an average annual rainfall of 450mm and high temperatures averaging 26 degrees celisius. The area experiences unreliable erratic rainfall, and at times in other parts of the regions floods are experienced. The environmental changes experienced calls for the indigenous people in the study area to be equipped with adaptation, mitigation and survival skills which they have developed over a long period of time and has been passed from generation to generation. Basically passage of information is through oral means, hence this paper advocates for the documentation of this intricate knowledge. This part of the paper will explore some aspects of IKs as practiced in Zimbabwe, aspects to be considered are:

- a) Plant phenology
- b) Health and Disaster risk reduction
- c) Food and security
- d) Conflict resolution and natural resource management

Plant phenology

The understanding of the earth biological diversity over time and passing on understanding from the generation to the other has meant that the Dande Community has developed an Indigenous knowledge base. Phenology refers to the branch of science focusing on the influence of climate on the recurrence of such annual natural phenomena of animal and plant life as budding and bird migrations.

IKS base in Dande is characterised by a sophisticated appreciation and understanding of their immediate environment including the recurring natural plants phenomenon. The locals have developed skills and techniques to sustain and conserve their biodiversity. UNFCCC (2007) called for an urgent need to incorporate the indigenous knowledge in protecting the biodiversity.

In the Dande Valley the local People has over the years protected several tree species especially fruit trees like (Masau) *Zeziphus Mauritana* which they consider to be sacred trees ,which no one is allowed to cut down for any other use besides harvesting the fruits when they are ripe.

There are certain specific forest points that have survived and have been managed without human interference; these are a true evidence of how indigenous knowledge system can help preserve biodiversity in selected forest protected areas, these include, Mutsudze, Nzou mvunda, Chadereka, Kairezi, Utete, Chitsungo, Kanyemba forest. It is in these areas that the locals perform cultural and spiritual expression; they can also hunt wild animals, pick wild fruits, and harvest fish sustainably. However these selected forest areas are sacred places that are ruled and controlled by traditional leaders who rely on advice from traditional experts found almost in every village of the Dande Valley.

The identified forest provides a wide range of functions, and these functions are better explained by the indigenous knowledge experts. Information gathered from the IKs specialist suggests the following function these sacred forest provide to the Dande community and these include provision of the aesthetic value, food and medicines. The identified forest in the Dande Valley are also places where traditional cultural gathering are conducted, the forest serve as damp micro climates that the locals utilize productively. Besides the above importance the existence of these forests gives the future generations a sustainable true reflection of the real forest.

Mutsudze Forest and Chadereka forest are model forest that the government should take note of, and try and promote in other areas, emphasizing the importance of indigenous knowledge in forest management. In these forest areas people live in harmony with their forest without external intervention. It is in Mutsudze forest that endemic species found in this area are protected from extinction for example *Dalbergia martini*, *Fagara/Zanthoxylum Zanthoxylum leprieurii*, *Xylothea tettensis*. It was established from this research that the Dande communities value its indigenous knowledge system .The research revealed that 89% of the respondents were of the opinion that their IKS should be recorded and stored systematically so that it contributes in environmental protection and sustainable developments. It must be noted that forest though preserved in some parts of Dande valley is under serious threats mainly because of the influx of population due to environmental migration caused by environmental stressors like drought or floods.

Health and Safety

Mararike (1999) says history in many developing countries has it that, health was protected and restored using indigenous herbs referred to as traditional medicines. Knowledge of the traditional medicinal herbs was passed from generation to generation through traditional elderly experts using oral means. Cemented by practical lessons in the forest like Mutsudze forest, the herbs provide a wide range of plant species and animals used as source of medicines hence the need to conserve biodiversity. However the indigenous knowledge on medicine could also be passed from one generation to another as highlighted by Adger et al. (2003). Nyong et al. (2007) categorised IKS into, individual knowledge, distributed knowledge and communal knowledge. The study established that in the Dande Valley the sharing of traditional medicinal information is vested on every member of the community, though there are some known traditional experts which are consulted There some medicinal plants which are known to almost every member of the community.

The knowledge is passed on at different platforms, like night gathering, during the day, or rituals. However besides IKS being community information there are some known traditional medicinal experts who fail or are reluctant to share the information with others, these normally contribute to the natural death of the indigenous knowledge information. This research established that due to increase of population and many anthropogenic activities most key plant and animal species that are used for medicinal purposes are under threat. Animals like the buffaloes and elephants whose horns were used for medicinal purposes, are almost extinct and already found in the nearby game reserve near Muzarabani.

Food and Security

Nazarea (1998:58) in Manatsa et al. (2010) says "The next constructive step is to seriously analyse the interface between agricultural Science and indigenous Knowledge, and study how local perspectives can be integrated." This study concurs with this study as it revealed that modern agricultural science is used to grow crops in Dande. Various indigenous knowledge systems are still being implemented in Dande.

Dande Valley communities are basically subsistence farmers who grow drought resistance crops like sorghum, rapoko, millet and maize Ministry of Foreign Affairs Zimbabwe (2011). Some of late have been growing cash crops which are not drought resistant like tobacco, however yield per hectre has been low mainly because of climate variability in Dande Valley. Indigenous knowledge plays a pivotal role in sustainable agriculture and has been practiced by different generation FAO (2008). There is need to document this valuable knowledge. Indigenous knowledge has over the years contributed to environmental protection, through agricultural practices like shifting cultivation, inter cropping, rotation, use of plant derivatives for insect control, these ensure control also on viruses as is the practice in the Dande region.

Issues related to pest developing resistance are almost silent, mainly because of plants used. Diseases are also controlled by mixed farming practiced by the Vakorekore people. Despite the many advantages of the IKS based farming methods, climate change has been the greatest threat, recurrent alternations extreme weather conditions of drought and floods has reduced production in this region threatening food security. Another problem of this type of agriculture is that it is an extensive type of agriculture, which is labour intensive and strives well when population is low in areas with vast virgin land. The influx of population in the Dande valley has meant disruption on some agricultural practices like shifting cultivation.

Agriculture has sustained the livelihoods of the Vakore kore, however there are some other activities that provides food security, though they normally play a supplementary role for example the collection of *Ziziphus Mauritania* (Masawu) fruits which are used to brew beer, or prepare beverages, cakes e.t.c, bee keeping for honey, hunting to a lesser extent since most wild animals have migrated further down to the Zambezi River area.

The indigenous people of Dande Valley as mentioned rely on plants as source of relish or food. They use IKS to test whether the plant is poisonous or not, for example if they want to test whether the identified type of mushroom is edible or not they pour fresh milk on it. If it turns sour, it automatically means it is poisonous, if it remains fresh then it means it is suitable for human consumption.

Dande farmers are also able to predict climate and weather conditions using IKS, the behavior of birds or animals like guinea fowl or lions normally indicate a dry spell or a good season to come, of note if guinea fowls or a lions are found mating in public or near homesteads it is an indication of a serious drought spell to follow. As noted by Enete et al (2009), Nyong et al. (2007) indigenous knowledge therefore plays an important role in Dande Valley community in terms of food security.

Sustainability of IKS in Dande Valley

Many scholars have advocated for the documentation of IKS for the benefit of the environment and future generations, however putting this into practice has been the greatest challenge. The ever changing environment has not spared this discipline either. According to Shoko (2012), Adger et al (1999), Nzeadibe et al (2012) IKS is transferred from generation to generation through oral means and is dynamic, hence susceptible to change over time. This research also revealed that age difference is also a barrier to the sustainability of IKS in the Dande valley. The reduced low life expectancy due to various natural diseases and other environmental factors has meant the death of the old knowledgeable.

Naturally these aged are buried with their knowledge. The age gap separates the young and the aged, since the young prefer written evidence whereas the aged prefer oral evidence, this alone makes the sustainability of IKS to be under threat. Bryan et al (2009), Risiro et al (2012) say the sustainability of IKS is also affected by the world view in terms of its reliability. There is need to streamline the IKS and focused natural resource management practice. Many scholars like Manyanhaire (2009), Adger et al. (2003), Glantz (1994) advocate for the integration of IKS with the modern Scientific Knowledge. This gives respect to IKS and ensures existence of IKS in the academic world. The fear is on the methodology that will be used to achieve the long term sustainable integration, as lack of a clear methodology will further result in the decay of IKS.

It is clear that integrating IKS and scientific knowledge will result in unacceptable compromises usually for the local people. Other issues that need to be investigated are the conflicting interests based on social and economic interests of integrating IKS and scientific knowledge. It must be stated nevertheless that there are a lot of barriers that hinder the existence and sustainability of IKS in Zimbabwe and hope only lies, on all stakeholder's involvement in policy and reform changes. Intellectual property rights have been observed as serious threat to IKS in many communities, since most communities are characterised by poor people who because of lack of finance, technology, and education cannot stand against the so called patent rights. IKS in Dande Valley meant different crop seeds would be passed from generation to generation, but now because of the patent rights, companies like SEEDCO, force poor people to fork out their little cash to pay these companies. The mentioned and discussed challenges to the survival of IKS calls for an immediate institutional and policy changes.

IKS a Policy Issue what's next

Policy refers to plan or course of action normally to address a problem according to Shoko (2012). Indigenous knowledge system as a discipline under threat endowed by complex attributes, present problems which needs plan or a course of action to address the problems. The problems can be addressed by a group of people in a community, or by traditional leaders, policy makers, researchers who normally advocate for policy change. The changes are lobbied by the government officials who according to the Zimbabwean laws table it before parliament for hearing, it is then debated, if accepted it is passed on and referred to the president for final endorsement, if not it will go for second hearing where it is also accepted or rejected.

Zimbabwe's first Science, Technology and Innovation Policy was first launched in 2002 and because of the economic and political melt down not much was achieved by this policy. The second Science, technology and innovation policy was launched in 2012 emphasis was on Information Computer Technology, biotechnology, non technology space science emphasizing on meteorology and aeromagnetic surveillance for mineral exploration. It is the thrust of the policy to focus on nanotechnology, emerging technology which takes a radical approach to revolutionisation of energy, and energy. While all this is on paper more emphasis should be put on Indigenous knowledge system which focuses on knowledge of natural resource management, in areas like knowledge of indigenous fruit, soil cultivation, herbal medicine and animal breeding. The policy should also emphasise on collaboration with other countries regionally and internationally.

The Zimbabwe government will indeed set the tone to protect its citizen's rights on indigenous knowledge. Though there has been an outcry of the term indigenous in the Zimbabwean government, very few people understand the importance of indigenous knowledge system as a discipline. To worsen the situation the policy and institutional framework fall short in terms of financial, support, protection and sustainable upkeep of indigenous knowledge system. Policies however play a pivotal role in protecting the environment, and supporting people's livelihoods. It is a dream of this study to advocate for IKS policy changes in Zimbabwe, which will help protect and preserve it. IKS policy has the potential to bring about economic and social development in a country. In Zimbabwe the IKS statutory instrument has a mandate to protect it, however monitoring and implementation of the statutes has been a cause for concern.

This paper also suggests the need to have a Meta database meant to improve the storage as well as facilitation of its dissemination. The management of IKS in Dande Valley could be supported by institutes of higher learning like, Bindura University of Science Education and Zimbabwe Open University, who could device supportive

system which could make the IKS Meta database a depository of IKS information which is readily available to any concerned citizen. IKS can also be availed in the well-understood vernacular language of Dande valley the Chikorekore language.

Involvement of institutes of higher learning would also ensure that, academics and researchers become part of this noble idea, as they will contribute immensely through IKS research information and dissemination. Sound policies are supported by adequate funding, it is the proposal of this study that more funding should be channeled towards the development of IKS disciplines, which include, storage, networking of IKS information, research, community awareness campaign, education, advocacy and lobby, as well as development of the curriculum that cater for IKS sections. The funding aspect as noted cannot be left only in the hands of the government, other players like Non Governments organizations also need to be involved.

CONCLUSION

In Zimbabwe though there is a Science, Technology and Innovation Policy, there is need to mainstream Indigenous knowledge practices supported by policy and these include natural resource management, plant phenology, health and safety, food and security issues. It has been noted that policy changes on indigenous knowledge should take cognisance of the fact that, not all IKS practices are important to the sustainable development of Zimbabweans. Not all indigenous knowledge can a priori provide the right solution for a given problem. It is important that the policy changes should first realign the existing policy, before integrating it into sustainable development programmes and an analytical approach to their appropriateness. In addition to scientific scrutiny there should be local considerations and involvement of the local people at all stages of IKS policy formulation, through integration of the local knowledge into recognizable formal adaptation policies. There is need for the government to support in capacitating institutes of higher learning, by providing increased formal education, information on technology, sustainable agricultural development and dissemination. The Zimbabwean government should also recognise the complexity, diversity of local knowledge systems whether indigenous or modern science, each with their specified unique, ontologies, history, modes of communication and epistemologies, is important for finding solutions to sustainable development problems be they environmental, social or economic.

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