Harnessing indigenous knowledge for sustainable forest management in Ghana

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ABSTRACT

This paper makes a case for harnessing indigenous knowledge (IK) for sustainable national development in Ghana. IK is the local knowledge that is unique to a given culture or society. It is the basis for local-level decision-making in agriculture, health care, food preparation, education, natural resource management, and a host of other activities in rural communities. According to the World Bank the basic component of any country's knowledge system is its indigenous knowledge. It is upon this knowledge that scientific research builds. In Ghana the Government has recognized the need to harness IK for sustainable national development and has therefore incorporated it into the National Science, Technology and Innovation Development Programme. There is no evidence however that scientific research in Ghana bases its activities on IK. The paper discusses the need to take IK seriously in Ghana and establishes its importance as a foundation for scientific research. It discusses the concept of indigenous knowledge in the forestry sector, its relevance in scientific discourse and the need for harnessing IK for national development. It further goes on to give some examples of IK application in the forestry sector of Ghana and emphasizes its importance in forest management. In harnessing indigenous knowledge, several issues need to be considered. For example who owns the local knowledge, who is responsible for validating it, what factors need to be considered during the validation process and what methods can be used to record, store and retrieve the IK identified.

Keywords: Indigenous Knowledge, sustainable forest management, forestry, information management, knowledge systems, Ghana.

1. INTRODUCTION

Forest resources play a key role in protecting the environment and are of tremendous importance to the sustainable development of every society (Boon et al, 2009). They provide social and environmental benefits such as biodiversity conservation, carbon sequestration, and protection against desertification. In addition, forests provide non-market benefits such as recreation, landscape amenity and pollution absorption (Willis et al, 2003). A significant percentage of the world's population depends on the forests for their livelihoods. Indeed the World Bank (2004) has estimated that about 1.6 million people around the globe depend on the forests to some degree for their livelihoods.

According to Kpelle (2012), in Ghana, agriculture including forestry accounted for 21.3% of GDP while the forests alone in the same year accounted for 2% of GDP and 11% of export earnings. He indicates that this is a significant reduction from a contribution of 8% about a decade ago.

The role of the forests in alleviating poverty in Ghana can therefore not be under-estimated. However the current trend in forest degradation and the dwindling of the resource base gives cause for concern. For instance, Boon et al (2009) report that the once rich evergreen and lush forests of Ghana have dwindled significantly due to a number of factors, key among them being the increasing rate of deforestation, illegal logging, population pressure and unsustainable agricultural practices, just to name a few. This has significantly affected communities who depend on the forest resource for their survival. There is the need therefore to ensure that this resource base does not disappear. The current situation calls for the application of measures and strategies to manage Ghana's forests sustainably and ensure that the resource base can be increased.

Therefore it goes without saying that considerable effort has to be put into the sustainable management of Ghana's forests. Successful and sustainable forest management thrives on the availability of information in various forms. For example the use of well known documented information that may have evolved through the research process can be applied in various ways. The use of such information is often validated by various authorities and bodies through formal scientific processes and documented. Other types of information such as local indigenous knowledge (IK) may have been used over several years by local and traditional authorities but there may not be any documented evidence to that effect.

IK is a powerful resource of rural people and therefore a key element in the fight against poverty and social exclusion for many rural communities worldwide. Recent trends also show that attention is shifting towards complementing scientific knowledge with indigenous knowledge (IK) for economic development. This paper makes a case for harnessing indigenous knowledge within Ghana, processing them using standardized procedures and storing them for preservation and future use. There has so far not been any significant study in this area in Ghana to assess the potential for harnessing this knowledge. However, ideas for this paper have been garnered from the extensive literature on the subject. The paper therefore draws on the knowledge of other authorities on indigenous knowledge, compares the different thinking and analyses the relevance of their suggestions to the Ghanaian situation.

There is a growing number of African governments and international development agencies such as the World Bank who recognize that local-level knowledge provide the foundation for participatory approaches to development that are both cost-effective and sustainable. However, policy makers, forest managers and the scientific community have for far too long ignored and in some cases denigrated the knowledge and experiences of traditional people in the management of the forests. These indigenous knowledge systems developed by local people over many years

have supported their forest based livelihoods for many generations. The information generated by traditional indigenous systems may complement formal forest science. However these traditional indigenous systems have been ignored by formal science.

1.1 **The importance of Indigenous knowledge and its relevance in scientific research**

Global communities have been using the rich body of knowledge referred to as indigenous knowledge (IK) for hundreds of years to solve specific developmental and environmental problems (Mohamedbhai, 2013). Indigenous knowledge is variously referred to as 'local knowledge', 'folk knowledge', 'people's knowledge', 'traditional wisdom' or 'traditional science'(UNESCO, 2014). This knowledge is passed on from generation to generation, usually by word of mouth and cultural rituals, and has been the basis for agriculture, food preparation, health care, education, conservation and the wide range of other activities that sustain societies in many parts of the world. It also refers to knowledge and skills that have been developed outside the formal educational system. This kind of knowledge is embedded in the community and is unique to a given culture, location or society. It is the local knowledge that forms the basis for local-level decision-making in agriculture, human and animal health, food security, education, natural resource management, and a host of other activities in rural communities (Boven and Morohashi, 2002).

Berkes (2000) reports that traditional knowledge is similar to Western science in that it is based on an accumulation of observations, but it differs from science in terms of its abstract nature. However some scholars have cautioned against overemphasizing the differences between Western science and traditional knowledge. Indigenous knowledge should be regarded as a complement to scientific knowledge.

In support of Berkes, Ajibade (2003) reports extensively on the need to incorporate indigenous knowledge into formal science. He affirms that academic concern with indigenous knowledge dates as far back as the first intensive fieldwork by anthropologists, but it is only in recent years that the possibility of using such knowledge as a basis for development activities been entertained. Other scholars such as Warren et al, (1989) and Richards, (1979) have tried to establish a basis for utilizing indigenous knowledge in agricultural development. Warren, et.al.(1989) for example wrote extensively on ethno-veterinary medicine, indigenous agricultural knowledge and gender issues, while Richards (1979) and others also emphasized the relevance of utilizing indigenous knowledge in soil resource inventory for increased agricultural production.

From the foregoing, it is evident that local people have a vast store of indigenous knowledge on issues which need to be tapped and compared to formal science. It is for this reason that the Government of Ghana in developing the National Science, Technology and Innovation Development Programme emphasized on the need to harness IK for sustainable national development. Therefore a full programme is to be developed around IK to ensure that the existing knowledge may not be lost, but rather be built upon for national development.

2. THE USE OF IK IN THE FORESTRY SECTOR IN GHANA

In the area of natural resource management, IK has been applied in the areas of soil fertility, forest protection, management of medicinal plants and food sources. Another emerging area where IK is being implemented is in the area of climate change. Local communities are vulnerable to changes in climatic patterns. Climate patterns play a crucial role in shaping natural ecosystems, human economies and the cultures that depend on them (UNEP, 2014). It is one phenomenon that affects every facet of human life and its predictability has influenced the pace and quality of a country's development.

2.1.1 Climate change mitigation and adaptation

Several studies have been conducted in Ghana on the use of indigenous knowledge in climate change adaptation. Gyampoh et al. (2009) for example studied five regions in Ghana (Upper East, Upper West, Northern, Western and Volta Regions) and analysed the use of indigenous knowledge in coping with climate change in those areas. The study reveals that communities rightly observe changes in their climate and have substantial understanding on what goes on around them and how they should make adjustments to ensure their livelihoods go on. The communities are able to provide concrete evidence of the observed changes to buttress their observations.

In a similar study, Arku (2013) concluded that people's understanding of what constitutes climate change is similar within local communities. Several coping strategies according to the study were adopted such as changing vocation to become a hired labourer during periods not suitable for farming, or engaging in irrigated farming, practising of professions learned, rearing of animals, and petty trading. Other studies with similar results have been documented. In all these studies it is evident that Indigenous knowledge can play a key role in helping local communities cope with climate change issues. There is the need to document the various strategies being adopted among farmers, between regions, and within different vegetation zones and map these strategies so that they can easily be tapped into and applied in relevant localities.

2.1.2 Traditional health and IK

Ghana has a rich biodiversity which has remained largely untapped. For centuries, local communities in Ghana have relied on herbal medicines to meet their health needs. Despite its significant role in meeting health needs, indigenous herbal practices have not been given the much needed attention due to perceived antagonistic relationship that exists between practitioners of herbal medicine and their counterparts in the conventional system and the drugs regulating authority. This notwithstanding, the use of herbal medicine will continue to remain an integral part of the indigenous health care system in Ghana. It is worthy to note that most conventional health medicines are directly or indirectly derived from plants or herbs located in our forests. The Centre for Indigenous Knowledge, a not for profit organization in Ghana, plans to collect, process and store such knowledge on local medicines for the use of all in collaboration

with the Centre for Scientific Research into Plant Medicine, a government research centre located in Ghana.

3. HARNESSING INDIGENOUS KNOWLEDGE

3.1 Factors to consider when processing IK

Several questions come to mind when developing a process for harnessing IK. In Ghana there are no processes to follow. This section therefore gathers ideas from similar initiatives by other authorities.

In a guide developed for protecting indigenous knowledge, Brascoupé et al (2001) lists key procedures that can be followed successfully. According to him there are four procedures to follow.

The community will need to:

1. Understand what is meant by IK and its products
2. Identify what organizational structures it needs
3. Understand the scope of its knowledge and to gather it together
4. To determine what roles community members can play

These procedures are useful in guiding librarians and managers of IK who in turn are able to focus on exactly what can or cannot be documented.

3.2 Managing and processing IK

Lishan Adam has written on the need to process IK so that it can be better preserved. He affirms that IK is a dynamic discipline, evolving from years of experience often encoded in unique forms such as proverbs, myths, rituals, and ceremonies. Inspite of its form and nature, IK must be treated in the same way as documented information. Harnessing indigenous knowledge and incorporating it into scientific knowledge means integrating information collected from rural people with scientific and technological information.

Many information management personnel and librarians have not paid significant attention to indigenous knowledge even though they recognize it as an important source of developmental information. With recent interest in IK, institutions must begin to find ways to process indigenous information in the same way as it does to scientific information.

Nakata and Langton (2005) observe that the library and information profession has a lot to learn if they are to meet the information needs of stakeholders of indigenous information and appropriately manage IK. This they assert may require libraries to move outside their comfort zone and begin to explore the unknown. This also calls for the development of new procedures for technical services, new skills and new disciplines, technologies, and collaborations.

Lishan Adam discusses information and communication technologies for example and explains the major roles they play in processing scientific information in libraries. There is no reason

why the same procedures cannot be used in managing IK. ICTs include telecommunications technologies such as telephony, cable, satellite and radio, as well as digital technologies, such as computers, information networks and software.

In the library environment, he emphasizes that ICTs can be used to:

- Capture, store and disseminate indigenous knowledge so that it can be preserved for the future generation
- Promote cost-effective dissemination of indigenous knowledge
- Create easily accessible indigenous knowledge information systems
- Promote integration of indigenous knowledge into formal and non-formal training and Education
- Provide a platform for advocating for improved benefits from IK systems

3.3 Issues that need to be considered

- Intellectual property rights of indigenous knowledge. Questions to ask are who owns the IK and how do we protect the intellectual property rights of communities?
- What national policies in support of knowledge for development should be put in place?
- What role should information and communication technology play in managing IK?

In conclusion, it can be said that IK is vital for economic development in Ghana and must therefore be utilised for that purpose and integrated into formal science. It must be treated like any other information product, processed and stored and preserved. However, further research needs to be conducted in this area, so that effective measures and procedures can be put in place for its proper integration.

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