

## AN EXAMINATION OF THE UTILIZATION AND MANAGEMENT OF NATURAL WOODLANDS IN SWAZILAND – A CASE OF KA BHUDLA COMMUNITY

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### ABSTRACT

The study sought to examine the utilization and management of woodland resources at Ka Bhudla area in Swaziland. Issues examined were the type of resources extracted and their uses, management practices applied, medicinal and cultural value of the woodland resources to the people, as well as mechanisms used for gaining access to the woodland resources. Data was collected through personal interviews from a sample of 153 households selected through convenience sampling. In the households, the targeted people were heads of households or any person above the age of 18 years in the event that the substantive head was absent. The findings depict a high reliance on woodland resources in the area especially fuel wood, food, and medicine. Most of the poor people depend on these resources for their daily needs. However, in terms of management, sustainable management practices were lacking. From the findings, it can be deduced that 'open access' to the woodlands contribute significantly on their poor management. It is unusual for people to take much care of a 'free' resource; rather everyone desires to get a better share for him or herself; hence, the 'tragedy of the commons'.

**Keywords:** Utilization, Management practices, Natural woodlands, Fuel wood, Open access, Medicinal plants

### INTRODUCTION

Swaziland has 17 364 km<sup>2</sup> of land area and is the second smallest country in the African continent; Gambia being the smallest. Small as it is, Swaziland has a vast forestry sector, covering 0.8 million ha, which is 45% of the total land area of the country. About 86% of this area is under natural forests and woodlands (DANCED, 1999). This paper focuses on woodlands. Woodlands can be defined as a habitat where trees are the dominant plant form (Anonymous, 2004). Woodlands/forests provide a wide range of services to human beings, namely; ecological (such as fresh air), economic, and social services to humans, including protection of water. Sharpe *et al.* (1976) argues that without the covering forest, watersheds cease to produce a regular flow of clean water and navigable channels may be silted. Forests/woodlands protect soil from wind and water erosion, regenerate soil through litter thus making it to be more productive hence, improving agricultural production, thereby, improving access to food. Moreover, they act as store-houses of carbon, much of which is released into the atmosphere when they (woodlands/forests) are cleared and burned, contributing to the build-up of greenhouse gases.

Furthermore, forests are the main reservoir of terrestrial biological diversity and are a vital resource for millions of local communities. In many respects, Southern Africa's forest and woodlands are regarded as a safety net for poor people, providing them with as much as 35% of rural households' income (Berliner, 2005). In addition, woodlands/forests have a medicinal and cultural importance especially in the African region. Finally, they are just admired for their natural beauty.

Sharma (1992), also states that forests are a valuable and environmental resource supporting natural systems and improving human welfare. It is estimated that about 1.6 billion people worldwide depend on the forest for their livelihoods, with 60 million local people depending on it for their survival (Anonymous, 2008). In Swaziland, the livelihood of a majority of the people is dependent on natural forests and woodlands, especially in rural areas where 75% of the population resides and where poverty is very high (DANCED, 2000). According to the National Forestry Conference (2006), altogether, some 350 million of the world's poorest people depend almost entirely for their subsistence and survival needs on forests. A further 1 billion poor people which is about 20% of the world's population depend on remnant woodlands, on homestead tree gardens, and on agro-forestry systems for their essential fuel wood, food and fodder needs (National Forestry Conference, 2006).

Despite the importance of this vital resource to human beings, deforestation and forest degradation continue to occur in the world more especially in the African region due to a variety of causes, including demographic pressures, poverty, production and consumption patterns, land tenure patterns and land speculation. For example, land under the Swazi Nation Land (SNL). In Swaziland, most of the land (56%) under SNL is communally owned. DANCED (2000) argues that, access to most resources on the SNL is not easy to control and often open to the predominately free communal use.

Other important factors that contribute to deforestation and forest degradation include, illegal logging, grazing pressures, illegal cultivation, the demand for fuel wood and charcoal, natural climatic events and forest fires. In FAO (1999) it is noted, that during 1990 to 1995, the annual rate of total deforestation in Africa was about 0.7 per cent. It is also said that for every 28 trees cut down in Africa, only one tree is replanted. It is estimated that the average deforestation rate in the SADC region is about 0.6% per annum. This rate of loss of forest cover ranges from 1.2% in Swaziland to 2.4% in Malawi. Deforestation is highest in Zambia and Malawi where it is estimated at 2.4%. Deforestation in the SADC countries is mainly from conversion of forestland to agriculture, a high dependence on wood and uncontrolled tree felling for fuel wood as an energy source (sometimes for commercial purposes), and uncontrolled frequent fires (FAO, 2001).

Natural forests and woodlands support the livelihood of a large segment of the population of Swaziland, especially in rural areas where 75% of the population reside and where poverty is very high (DANCED, 2000). The vast majority of the rural poor highly depends on and derives many direct and indirect uses and benefits from natural forest and woodland resources which include: food, construction material fuel wood, medicine, fodder, just to name a few. Despite their significant contribution to people's livelihood, in Swaziland they are under pressure due to human activities. Ka Bhudla is an area on Swazi nation land where people acquire land through the kukhonta system. The area is found in the Middleveld which is normally has a high rate of woodland degradation, thus the urge to examine the utilization and management of the natural woodlands. This paper focuses on: the resources extracted from the woodlands and their uses; whether the access to natural

woodland resources is controlled or not; management practices applied in natural woodlands at Ka Bhudla; as well as the cultural and medicinal importance of natural woodlands to people at Ka Bhudla.

### **Objectives**

The main objective was to examine the utilization and management of woodland resources at Ka Bhudla area in Swaziland.

The specific objectives were to:

1. determine the resources extracted from woodlands and their uses;
2. investigate whether access to natural woodland resources is controlled or not;
3. determine management practices applied in woodlands; and
4. investigate the cultural and medicinal importance of woodlands to people.

## **LITERATURE REVIEW**

### **Resources extracted**

The majority of rural households in developing countries, and a large proportion of urban households, depend on plant and animal products from forests/woodlands to meet some part of their nutritional, cooking and or health needs. Certain plants in woodlands contribute in many ways to combating malnutrition and improving diets in local communities and rural households. There is a wealth of wild fruits that have a great potential for local use as well as commercial development.

Many of the woodlands/natural forests in Swaziland are found in the poorer rural areas, where they play an important role in the local economy, livelihoods and culture of the people. These forests contribute in improving the well-being of local populations by providing a wealth of food like mushrooms, fruits, leaves, tubers, roots, nuts, and honey, flavourings (spices), medicines as well as and beverages. Women, in particular, count on these resources for supplementary nutrition, emergency foods, fuel wood for cooking and many other important products they need to ensure the nutritional well-being of their families. In fact, it can be said that nearly every tree, shrub or grass species is used in one way or another for food and nutrition.

At Ka Bhudla, most women extract Emaganu (*Sclerocarrya caffra*) fruits among many other woodland resources which include Halibhoma (*Albizia versicolor*), Tjani bemakhenya (*Themeda triandra*), and so on. They extract Emaganu (*Sclerocarrya caffra*) to sell as raw material to make lotions, soaps and other skin care substances. The women also use the fruit to make traditional brew (marula), which they sell to residents in their communities and outsiders.

### **Access and control**

According to The World Bank (2001), in most cases people's dependence on the forest depend on their access to them. Different plants face different levels of stress and pressure from human communities depending on population densities of user communities and how accessible the resource is to those users. The land tenure system plays a big role in terms of access to woodland /forest resources. According to Hassan *et al.* (2002), by customary law, all natural resources within a community boundary are considered as community property. Therefore, all community members are allowed to utilize the resources

which include forests/woodlands products and water from rivers. However, the manner in which community members access the resources in woodlands/forests varies from one community to the other.

### **Cultural importance of natural woodlands resources to people**

The variety of cultural values and symbolic functions attributed to the forests are as numerous and diverse as the communities and cultures of the African region. Physically and spiritually forests have defined the environment of communities in the region throughout time immemorial. Unnoticeably, forests feature in all aspects of culture: language, history, art, religion, medicine, politics, and even social structure itself.

Woodlands/forests provide a range of products for traditional ceremonies from food and beverages to costumes and musical instruments and they provide venues for these social and religious ceremonies. For example, Palm wine and cola nuts are important symbolic foods throughout humid West Africa. In Nigeria, palm wine is of paramount importance at most social functions (Okafor, 1979). It is used in pouring libations, offering prayers, and heralding events. Cola nuts are regarded as important symbols of welcome and hospitality.

In Swaziland, marula also have supreme importance at most social and cultural functions which include traditional weddings and imimemo, respectively. Annually, during March there is an emaganu ceremony which is celebrated in two royal residences in the country. One is held at eBuhleni Royal Residence while the other is at Hlane. Women around these areas are expected to brew the marula beverage and bring it before their Majesties (King and Queen Mother). On the other hand, for Muslims of the West African region, cola nuts are sacred: something given to them by the prophet. They are a symbol of friendship and feature in all festive occasions. Among the Igbo of Southern Nigeria, all discussions, prayers, and ceremonies begin with the breaking of cola nuts. Without cola nuts, these occasions are not regarded as serious (Okigbo, 1980).

Furthermore, traditional practitioners (Tinyanga and Sangomas)' initiations just to name a few are performed in the woodlands/forests in many parts of the African region, Swaziland inclusive. Many indigenous plants and trees are of great cultural importance at all levels of the Swazi society, including the Royal household. Plants such as, Lusekwane (*Dichrostachys cinerea*), Umhlanga (*Phragmites spp.*) are given high value by the people of Swaziland as they are used for cultural rituals. The Incwala (which goes with the cutting of Lusekwane) is an annual 'males' ceremony in Swaziland performed in December/January every year and is associated with royal cleansing. On the other hand, the Reed Dance (which goes with the cutting of Umhlanga) is a traditional Swazi ceremony performed by girls during August/September of every year. During this time, reed is collected for renovation of the hut enclosures (emaguma) of the royal residences (Government of Swaziland, 2002).

In many African myths and stories, a tree is portrayed as an ancestral symbol of wisdom, authority and custom, providing a bond between the dead and the living (Studstill, 1970). Trees play a role in all facets and periods of West African peoples' lives, the Oubangui (Central Africa) plant a tree in the bush for a new-born child. For female children a fast-growing profuse fruiter is planted. The child's development is linked to the growth of the tree. If tree growth declines, people fear for the

health of the child and a healer is called upon. When the child is sick it is brought to the tree for treatment. When the tree begins to fruit, the time will have come for the child to marry. Throughout a person's life, gifts are occasionally left for the tree. When people die their spirits go to reside in their personal "birth right" trees (Vergiat, 1969).

### **Medicinal importance of natural woodlands resources to people**

Traditional medicine refers to ways of protecting and restoring health that existed before the arrival of modern medicine. As the term implies, these approaches to health belong to the traditions of each country, and have been handed down from generation to generation. Traditional systems in general have had to meet the needs of the local communities for many centuries in relation to health needs. Humans throughout the ages have relied on plants as a source of medicine.

In Swaziland, traditional medical practice is still the main vehicle of health care delivery today especially in the rural areas of the country where about 85% of the population rely on it for their medical care (Amusan *et al.*, 2007). Green and Makhubu (1983) observed that the first port of call for an average Swazi when ill is the Traditional Medical Practitioner (TMP) for traditional medicine even if the modern health clinic is not far.

Swaziland supports a rich and varied biodiversity. The forest inventory of 1999 indicates that Swaziland has 45 per cent coverage of forests and woodlands, of which natural forests cover 2.2 per cent, natural woodlands 22.0 per cent, natural bush lands 13.4 per cent, wattle forests 1.4 per cent and plantation forests 6.4 per cent (Government of Swaziland, 2002). However, the commercialization of traditional medicine has resulted in the over-utilization of a variety of plants. In Swaziland there is an active harvesting and trade (both local and exported-usually to South Africa) of medicinal plants. Mander *et al.* (1997), made some rough estimates for Swaziland of the consumption of medicinal plants using the results of the KwaZulu-Natal and Mpumalanga surveys. He assumed that if the visitation frequencies for the Swazi people follow a similar pattern to Mpumalanga and KwaZulu-Natal, then there may be 5.8 million consumption events of local medicinal plants a year in Swaziland. This implies that there may be as much as 219 tonnes of plant material consumed a year.

Harvesting of wild plants for traditional medicine (for local use and export) is extremely detrimental to certain species. Sustainable management of medicinal plant species is important, not only because of their value as a potential source of new drugs but due to reliance on medicinal plants for health care. Although the value of medicinal plants is widely recognized by both rural and urban dwellers in Africa, there are no appropriate strategies introduced, which may lead to the efficient utilization and management of the medicinal plants, which are commonly used by the communities.

The bad practice of over exploitation of medicinal plants, can lead to the extinction. An example given by Dlamini (1981) and Makhubu (1978), is that of (*Hypoxis hemerocallidea*) Lilabatseka which is used as an all-purpose medicine. The plant has become endangered species because its bulb is being dug and commercialized by many people without any thought of conservation. The plant has been over exploited by many in traditional medicine in the country. It was said to be one of the plants highly demanded by many people because of the HIV/AIDS pandemic in the country. The infusion of the dried bulb was used for treating many ailments.

### **Sustainable forest management practices**

Berliner (2005) state that, sustainable forest management means securing benefits for human needs while maintaining the structure, function and integrity of ecosystems on a bio-regional basis, incorporating in perpetuity complete forest successions in each bio-region. Berliner (2005) further argues that principles of sustainable forest management need to be translated into communal management strategies. All products and forms of utilization need to be dealt with simultaneously. Different users will have different priorities. Grazing, fuel wood collection, and extraction of medicinal plants, all very important in rural areas; have to take place in harmony, which requires a holistic approach of management. This means that as long as the community members are not homogeneous in management practices as it is the case at Ka Bhudla community sustainable management will not be accomplished.

The Swazi Administration Order of 1950 empowers the chiefs to look after Swazi Nation Land (SNL) on behalf of the King (Gamedze and Jæger, 2002). The fact that most of the country's population live on SNL an area that is mainly accessible to people, makes it the most vulnerable part of the country to unsustainable utilisation of natural resources. The chiefs allocate land to community members residing in their chiefdoms and formulate rules and regulations concerning the utilization of natural resources within the chiefdom. In some chiefdoms, particularly in the past, this system appeared to have worked as intended resulting in proper and sustainable natural resource utilization but in some unsuccessful. Most community members at Ka Bhudla are aware of the economic significance of the natural resource; however, they do not seem to be much concerned about its management due to the open access nature of woodlands 'Tragedy of the commons'.

In Swaziland, sustainable forest management needs to be emphasized at community level, with support from relevant authorities and organizations since the majority of the natural forests/woodlands are on Swazi Nation Land and should be managed by the communities. Although there may be examples of sustainable management in other communities, there is more often a lack of proper management. In fact, most of the woodlands are severely degraded, due to lack of conservation methods as part of the overall management. The Forestry Section is faced with a great challenge to ensure that the large areas of natural forests/woodlands are sustainably utilized and managed. Moreover, the local communities and non-governmental organizations can help to promote local initiatives for natural resource management, which involve tree planting, nurseries development, and alternative ways of generating income that do not harm wildlife or the environment other than the sale of fuel wood, which is high at Ka Bhudla.

In a nutshell there are a number of goods and services provided by woodlands and they are continually needed by human populations, especially, in the health (medicine and carbon sink) and nutrition (food) sectors. Furthermore, water supplies are usually cleaner and more reliable from naturally forested catchments than from ones maintained by constant effort under artificial vegetation and engineering structures (Sharma, 1992). Moreover, in some activities and ceremonies which contribute significant cultural values to the welfare of the Swazi people, for example, funerals, weddings, initiations and births, natural forest/woodland products such as plants are employed. Therefore, it is significant to examine the utilization of

this vital natural resource culturally, medicinally and otherwise as well as its management by the rural people where it is mostly found.

## METHODOLOGY

### Study area

KaBhudla is located in the Lower Middleveld physiographic region of Swaziland. The Middleveld region normally has a high rate of woodland degradation, thus the urge to examine the utilization and management of the natural woodlands. KaBhudla area is characterised by low hills and an altitude of 400-600 metres above sea level with a slope of 12% (Remmelzwaal, 1993). The area is drained by three rivers namely; Mzimpofu, Ngongolwane, and Lugulo (Figure 1). The area is surrounded by a number of hills and mountains which include; Ntabamhloshane, Ntonto, Bulunga and Mbadlane (Figure 1). These mountains contribute to the vast number of tree species found in the area as most of the trees are harboured by these mountains.

The natural woodlands of this area comprise a wide range of species such as umganu (*Sclerocarrya caffra*), Umkhwakhwa (*Strychnos madagariensis*), Umnduze (*Crinum bulbispermum*), Sanhlangu (*Gymnosporia buxifolia*), Umkhabamkhombe (*Albizia adianthifolia*), Umsilinga (*Melia azedarach*) Umgwava (*Psidium guavana*), Imbondvo (*Combretum*) and Umvongotsi (*Kigelia africana*). There is a variety of resources that are extracted from the woodlands which include: fuel wood; construction material for houses, fencing, and kraals; raw material for handicrafts and domestic tools; medicinal plants and cultural plants; as well as fruits and vegetables.

Ka Bhudla area is made up of 612 households. Most of these households are located close to the woodlands while some are away. Subsistence farming is the dominant land use at Ka Bhudla area. Moreover, clearing of large portions of land for construction of homesteads or settlements is also a common practice. There is also a large proportion of communal land that is reserved for grazing and all of the above land uses contribute to the depletion of the natural woodlands if excessively or unsustainably practiced. Maize is the main crop grown in the area with others which include; melons, jugo-beans, groundnuts, pumpkins, sweet potatoes, and cassava.

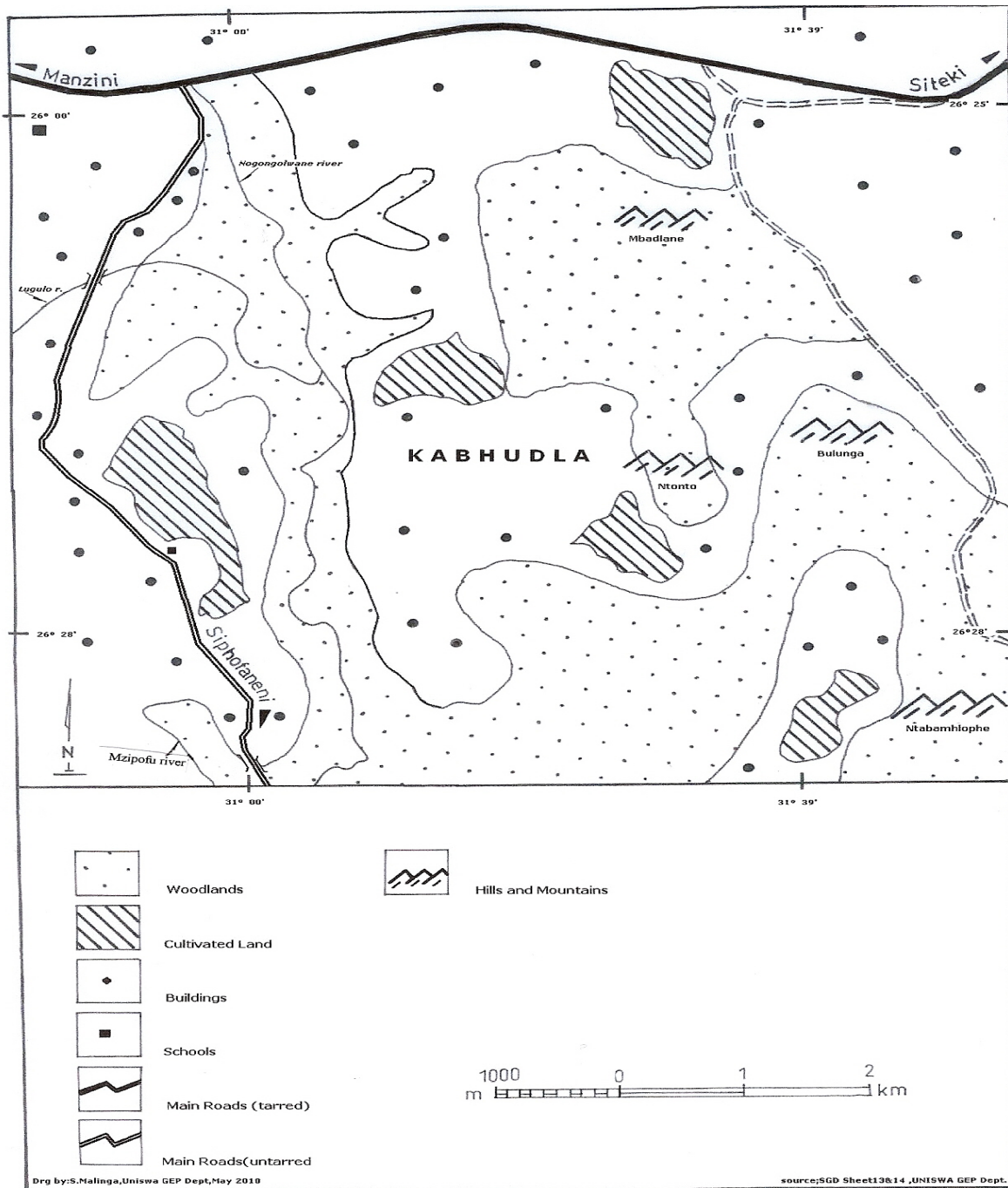


Figure 1. Map of Kabhudla



### Data collection techniques

The study used face to face interviews guided by a questionnaire and a guided direct observation to solicit data. Out of the 612 households at KaBhudla community, 25% which is 153 households were selected through convenience sampling. Convenience sampling is whereby the researcher considers respondents who are available at that particular time and are willing to be interviewed. The interviews were administered to heads of households (men and women) or any person above 18 years who was present at that time. Apart from the household interviews, the headman of the community was also interviewed as a key informant. The data for this study are presented in narratives and tables. For purposes of analysis, interpretative analysis was used. This is a method of analysing qualitative data, which emphasizes on the role of patterns, categories, and basic descriptive units.

## FINDINGS AND DISCUSSIONS

### Extraction of resources

Natural woodlands constitute a major natural asset for KaBhudla community and are the main source of well being for the people. The people look into the forest to fulfill their basic needs which include food, medicine, construction materials and fuel wood, amongst other things. Furthermore, it was gathered that most of the respondents extracted the natural woodland resources several times in a week. This is a clear indication that most of the people in the area are dependent on the woodlands for their survival. Also, the number of times the people access the woodland in a week show how much they are reliant on the woodlands. For instance, 26% of the respondents indicated that they access the woodlands on a daily basis while 10% stated that they access the woodlands only once a week (Table 1)

Table 1: The number of times in which respondents access the natural woodlands in a week

Number of times in a week	Frequency	Percentage (%)
Once a week	15	10
More than once a week but not everyday	98	64
Everyday	40	26
<b>Total</b>	<b>153</b>	<b>100</b>

Source: Fieldwork (2009)

From the findings it emerges that almost all the households interviewed in the area had extended families which made them to be fairly large with some up to 15 members. In most cases the larger the household the more the utilisation of the natural woodland resources. For example, edible woodland resources like fruits such as Emaganu (*Sclerocarrya caffra*), Tineyi (*Berchemia zeyheri*), Umkhwakhwa (*Strychnos madagacariensis*) as well as vegetables such as Ligusha (*Corchorus confusus*) were highly utilized by large families which are in most cases the poorest.

The study discovered that kaBhudla community utilized the natural woodland resources for a wide range of purposes which included; fuel wood, construction, food products such as fruits, meat and vegetables, medicinal plant materials, thatch, and raw materials for making handicrafts domestic tools as well as cultural uses (Table 2). The findings reveal that the most

extracted resources are fuel wood, fruits, construction material, cultural and medicinal plants. For fuel wood, the respondents pointed out that they do not use any tree that they came across, but, there are specific trees used. These include; Mangololo, Lusekwane (*Dichrostachys cinerea*), Sitfwetfwe (*Acacia borleae*), Umzilazembe (*Dichrostachys cinerea*), Umdlelanyamatane, Imbondvo lemhlophe (*Combretum zeyheri*).

Table 2: Resources extracted from natural woodlands

Resource use	Frequency	Percentage (%)
Fuel wood	144	94
Construction material	113	74
Medicinal plants	102	67
Cultural	150	98
Thatch	43	28
Fruits	150	98
Meat and vegetables	77	50
Raw material	107	70

Source: Fieldwork (2009)

Tree species like Mangololo, Sitfwetfwe (*Acacia borleae*), and Umzilazembe (*Dichrostachys cinerea*) are preferred because they burn for a long time and produce good coals. On the other hand, trees species like Imbondvo lemnnyama (*Combretum molle*), Umhlalantsetse (*Combretum microphyllum*), Inchithamuzi (*Ilex mitis*) were considered a taboo to be used as fuel wood. Reasons for some of the plants to be shunned being that, they possess certain evil powers which can cause destruction of a family, for example, Inchithamuzi (*Ilex mitis*).

There is also a wide range of fruits and vegetables which are extracted from the woodlands and these include; Umkhwakhwa (*Strychnos madagacariensis*), Tineyi (*Berchemia zeyheri*), Ematfundvuluka (*Ximenia caffra*) , Emagwava (*Psidium guavana*), Emakhiwa (*Ficus capensis*), Emaganu (*Sclerocarrya caffra*), Ligusha (*Corchorus confusus*), Ingotjwa (*Tulbaghia*) and Emahala (*Aloe saponaria*). The most extracted vegetables are the ligusha (*Corchorus confusus*), and Emahala (*Aloe saponaria*). The most extracted fruits were Emaganu (*Sclerocarrya caffra*) and Umkhwakhwa (*Strychnos madagacariensis*). On the other hand, people extract Umkhwakhwa (*Strychnos madagacariensis*) and Emahala (*Aloe saponaria*), mostly because of their multiple utilities. Umkhwakhwa (*Strychnos madagacariensis*) is both a fruit and vegetable. They claimed that when this fruit is mixed with mealie meal, one comes out with a tasty meal and does not go to bed with an empty stomach just because he or she had no meat. Emahala (*Aloe saponaria*) on the other hand, are used both as a vegetable and medicine. They were claimed to reduce diabetes and other cardiac ailments and at the same time eaten with porridge as a vegetable.

Extraction of the different resources is carried out by all household members which include; men, women, boys, and girls and in most cases the resources extracted are similar. However, the way the resources are utilized by the different members of the

household tends to differ in most cases. For example, Umaganu (*Sclerocarrya caffra*) is extracted by all the members in a household but is used differently by each. Men mostly extract the bark of this tree which they use to induce vomit as a way of cleaning both the stomach and the chest; hence is used as a health measure. Women on the other hand, mostly collect its fruits to use in preparation of the Swaziland's famous marula brew (buganu) which they sell to both the residents and outsiders. Girls and boys like the women collect the fruits, however, they do not make the traditional marula brew rather they eat it as a fruit or sell it to women who make the brew out of it.

In addition, women and girls of KaBhudla area primarily collect fuel wood whereas men and boys collect wood for construction purposes such as building of houses and kraals, as well as erecting fences. For erecting fence the targeted tree species were mainly Umkhaya (*Acacia burkei*) and Sitfwetfwe (*Acacia borleae*). On the other hand, for constructing houses they used trees like Umzilazembe (*Dichrostachys cinerea*) and Umtfombotsi (*Spirostachys Africana*) which are the strongest species available in the area. Furthermore, in some cases, women also extracted wood for construction purposes especially where the men were migrant workers. Similarly, 48% of the respondents pointed out that some men also collected fuel wood but mainly for commercial purposes (Table 3). The fuel wood is sold to residents of the area who are far away from the woodlands and to non-residents who passes by the road. The sale of fuel wood was promoted by its mere availability throughout the year unlike other seasonal resources.

Apart from the sale of fuel wood other natural woodland resources sold include; Emaganu (*Sclerocarrya caffra*) both as fruits and marula brew (39%), Halibhoma (*Albizia versicolor*) as baskets, mats, and bags (26%), and assorted fruits (18%) (Table 3). With the proceeds from the sale of woodland resources women pay for their children's education.

Table 3: Proportion of respondents who sold resources from the natural woodlands

Resource sold	Frequency	Percentage (%)
Emaganu ( <i>Sclerocarrya caffra</i> )	60	39
Halibhoma ( <i>Albizia versicolor</i> )	40	26
Fruits (assorted fruits)	28	18
Thatching grass	12	8
Tjani bemakhenye ( <i>Themeda triandra</i> )	20	13
Ligusha ( <i>Corchorus cofusus</i> )	17	11
Fuel wood (various plants)	73	48
Domestic and cultural tools (hoe handles, knobkerries)	23	15
Lisundvu ( <i>Phoenix reclinata</i> )	16	10

Source: Fieldwork (2009)

### Access and Control over forest resources

Accessing natural woodland resources was only determined by being a member of the community. Therefore, it was only people from neighbouring communities who sought permission from the chiefdom's umphakatsi to access the natural

woodlands. However, the open access nature for community members has resulted in some species such as Umzilazembe (*Dichrostachys cinerea*) becoming scarce at KaBhudla. However, the depletion of tree species is also attributed to environmental changes such as drought which has resulted in the drying up of rivers. Despite the open access nature to woodland resources for community members, they are not allowed to cut fruit trees. In the event that such an offence is committed, a fine is levied on the offender.

### Management practices

Forest management involves the organized application of any particular silvicultural procedure to regulate and control yield and to ensure restocking of harvested areas to achieve pre-determined objectives. From the findings, 64% of the respondents indicated that they were not employing any management practices in the natural woodlands (Table 4). However, 14% of the respondents pointed out that they smear cow dung after removing the bark to prevent the tree from infections (kutondza), which may lead to it drying up. This was mainly done by those who want plant specimens for medicinal purposes. Worth noting is that although fuel wood collection was widespread in the community, 4% of the respondents indicated that they collected only dry wood (Table 4). This therefore, indicates an unsustainable practice since it means 96% of the respondents not only collected dry wood but also cut down growing trees, an act which hastens woodlands' depletion. Furthermore, it is worthwhile to note that people who used trees for medicinal purposes made an effort to conserve them such as digging on the side for roots (10%) and collecting leaves (8%) instead of cutting down the whole tree (Table 4). In addition, the study disclosed that depletion of natural woodlands has affected the distribution of wild animals, which provide a source of food (bush meat) for the people.

Table 4: Management practices employed in natural woodlands

Management practices	Frequency	Percentage (%)
Smear cow dung after removing the bark	22	14
Side digging of roots	15	10
Collection of dry wood only	6	4
Leaf collection	12	8
None	98	64
<b>Total</b>	153	100

Source: Fieldwork (2009)

### Medicinal importance

Plants are the oldest known sources of human and livestock healthcare, and an important component of global biodiversity. The study revealed that at KaBhudla, there is a high reliance on medicinal plants and most people would only consult modern medical practitioners when traditional medicine has been unsuccessful. The mostly utilized plant species include Umlahlabantfu (*Ziziphus mucronata subsp*) [30%], Emganu (*Sclerocarrya caffra*) [28%], Umkhiwa (*Ficus capensis*) [22%], and Imbita yebantfwana (*Cladostemon kirkii*) [25%] (Table 5).

Table 5: Medicinal plants utilized by the community of KaBhudla

Resource	Uses	Frequency	Percentage (%)
<u>Umganu</u> ( <i>Sclerocarrya caffra</i> )	Bark mixture for diarrhea and to induce vomiting (as a stomach cleaner)	43	28%
<u>Sanhlangu</u> ( <i>Gymnosporia buxifolia</i> )	Leaf chewed to cure stomach ailment	47	31%
<u>Umkhiwa</u> ( <i>Ficus capensis</i> )	Its milk used to cure ringworms	34	22%
<u>Umkhabamkhombe</u> ( <i>Albizia adianthifolia</i> )	Stem bark concoction for stomach-ache	32	21%
<u>Umsilinga</u> ( <i>Melia azedarach</i> )	Root infusion for diarrhoea	31	20%
<u>Lidzelanyoka</u>	Leaf concoction for flue	38	25%
<u>Mahlanganisa</u> ( <i>Coddia rudis</i> )	Concoction for injuries; a broken bone or other	38	25%
<u>Umlahlabantfu</u> ( <i>Ziziphus mucronata subsp</i> )	For boils and <u>kukhokha emanyeve</u>	46	30%
<u>Umsutane</u> ( <i>Lippia javanica</i> )	Cure for head aches	32	21%
<u>Imbita yebantfwana</u> ( <i>Cladostemon kirkii</i> )	Cure for <u>umzimba omubi</u> (cleans the blood preventing sores)	38	25%

Source: Fieldwork (2009)

## CULTURAL IMPORTANCE

Cultural values and symbolic functions ascribed to the forests are as numerous and diverse as communities and cultures of the African region. Woodlands/forests feature in all aspects of culture which include: language, history, art, and even social structure. Woodlands provide a venue for many cultural events and cultural ceremonies which include; funerals, weddings, installation of chiefs, and initiations. There are also certain plant species that go with each event. For example, plants like Umlahlabantfu (*Ziziphus mucronata subsp*) [33%] and Umvalasangwane (*Gardenia cornuta*) [5%] are used during burial, while Sihlati (*Ansellia africana*) [11%] and Liletsa (*Pappea capensis*) [15%] are used in marriages, to bath the bride so that her in-laws loves her and do not even see her weaknesses (Table 6). In other words, the plant is viewed by the residents as a plant that do away with all bad luck.

The findings further reveal that plants in the woodlands are viewed in both positive and negative lights. For instance, Inchithamuzi (*Ilex mitis*) [35%] is believed to have evil powers which cause separation or destruction to a family when it is used as fuel wood while, Umcobhe (*Monanthataxis caffra*) [15%] is believed to have powers which chase away the evil spirits (Table 6). Moreover, species like Umkhuhlu (*Trichillia emetica*) [18%] and Umtfongwane (*Albizia harveyi*) [8%] are valued for their use in making a traditional underwear (umvunlo), that is worn by men when clad in loin skin (emajobo)

(Table 6). Furthermore, the findings reveal that 53% and 18% of the respondents used Umvongotsi (*Kigelia Africana*) and Umhlonhlo (*Euphorbia spp.*) as a protection against lightning, especially the one that is associated with witchcraft (Table 6).

## **CONCLUSION**

In conclusion there is a high dependence on natural woodland resources in Swaziland in general and at Ka Bhudla in particular. The resources are used for a myriad of purposes such as construction, warming, food, medicinal as well as cultural. Regarding the extraction of resources all household members participate though sometimes to extract different resources for different purposes. However, the fact that access to woodlands is open to all community members defeats all efforts towards sustainable management of the resources. As a result, some species are extracted at a very high rate, hence are in danger of extinction. Nonetheless, it is highly appreciable that some people, especially those who rely on medicinal plants relentlessly make an effort to conserve woodland resources through harvesting only what they needed at that time. This is a practice that ensures sustainability of the forest resources. However, such efforts are countered by those who sell fuel wood, since they destroy almost every tree. Hence, such a situation depicts that individual interests do not coincide with community interests, *i.e.* tragedy of the commons.

Table 6: Cultural plants used by the people at KaBhudla

<b>Resource</b>	<b>Uses</b>	<b>Frequency</b>	<b>Percentages (%)</b>
<u>Cabatane</u>	Given to a child when it goes out of the house for the first time	23	15%
<u>Umcobhe</u> ( <i>Monanthes affra</i> )	Protection against evil spirits	20	13%
<u>Umkhuhlu</u> ( <i>Trichillia emetica</i> )	Make special underwear for regiments in traditional attire	28	18%
<u>Sihlati</u> ( <i>Ansellia africana</i> )	Used for bathing a bride to cleanse her of bad luck when she goes to marry	17	11%
<u>Umvongotsi</u> ( <i>Kigelia africana</i> )	Protect household against lightening	81	53%
<u>umlahlabantfu</u> ( <i>Ziziphus mucronata subsp</i> )	Placed on top of graves	51	33%
<u>Umncoma</u> ( <i>Olea spp</i> )	Used to make regiments knobkerries	15	10%
<u>Liletsa</u> ( <i>Pappea capensis</i> )	Used to bath a bride before going out to marry for good luck	23	15%
<u>Umhlalantsetse</u> ( <i>Combretum microphyllum</i> )	Sacred, not to be used as fuel wood	9	6%
<u>Inchithamuzi</u> ( <i>Ilex mitis</i> )	Has separation powers and can divide a household if used as fuel wood	54	35%
<u>Umhlonhlo</u> ( <i>Euphorbia spp.</i> )	Protect a homestead from being struck by lightening	46	30%
<u>Umdlelanyamatane lomnyama</u> ( <i>Euclea schimperi</i> )	Sacred, not to be used as fuel wood	20	13%
<u>Umtfongwane</u> ( <i>Albizia harveyi</i> )	Make special underwear for men in traditional gear	12	8%
<u>Umnduze</u> ( <i>Crinum bulbisp ermum</i> )	used to make regiments sticks	28	18%
<u>Umnunu</u> ( <i>Teucrium riparium</i> )	Used to bath a bride before going out to marry – for good luck	23	15%
<u>Umsikildi</u>	Used as a traditional tissue	6	4%
<u>Sihlati lesimnyama</u>	Bath a widow as to cleanse her at the end of her mourning period	23	15%
<u>Sibungu selifahlawane</u>	Make anklets for women and girls for doing traditional dances	9	6%
<u>Umvalasangwane</u> ( <i>Gardenia cornuta</i> )	Used for burial purposes	8	5%
<u>Inyoni</u>	Where a small child is taken to chase away all evil spirits	35	23%

Source: Fieldwork (2009)

## RECOMMENDATIONS

This paper recommends that to promote sustainable woodland resource management at kaBhudla, community based programs should be established. These programs should embark on maintaining the woodlands in the area such as planting trees. In addition, human-made household woodlots should be encouraged in the area so that overexploitation of the natural woodlands for fuel wood in particular can be circumvented.

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