

Culture and Food Habits in Tanzania and Democratic Republic of Congo

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ABSTRACT The paper is based on a study which used primary and secondary sources to examine the influence of culture on food habits in Tanzania and the Democratic Republic of the Congo. The study revealed that culture impacted on food habits, through food production, distribution, and consumption. The other factor considered was the HIV/AIDS. As community knowledge-holders die of AIDS, they take with them their local knowledge and experiences. In times of severe labour shortages owing to AIDS, people plant fewer crop varieties to save time and money. There should also be a realization that while some cultural practices have negative effects on nutrition, especially among women and children, many provide valuable opportunities for improving community-based food-security and nutrition. It is recommended that policymakers, researchers and other stakeholders should incorporate culture and food habits in community-based food security, nutrition and educational programmes.

INTRODUCTION

As in most African countries, Tanzania, and the Democratic Republic of the Congo (DRC) are home to many ethnic groups of diverse cultures, which impact either directly or indirectly on habits owing to their influence on land-ownership and control, access and use, food production, distribution, preparation, and consumption (Robinson 2008). Richard (2007) defines food habit as the way in which different people and cultures select, cook, serve and eat food that are available to them and this could have impact on food security and nutrition.

The Advisory Council on Development Co-operation (2008) views food security as a situation wherein all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Derrick (2009) states that the present-day food cultures including food habits in African countries, including Tanzania and the DRC, have developed over time through people's interaction with each other and with their local environments. The environments in which people live, and their ancestral origins, have a social influence on food cultures and habits. These experiences and associated knowledge-systems have been passed on from one generation to the next hence food cultures in both countries have their foundations in the cultural diversity of the people and their environment.

In his discussion on the relationship between food habits and culture, Richards (2007) indicates that culture is what makes everyone different, in whom they are and where they originate. It incorporates all aspects of human life of a specific society and their way of communicating and interacting with other human beings. Food habits are one of the most important aspects in people's lives; they express the way people from similar or different cultures interact. Using examples from the Maasai in East Africa, Saitoti (2010) reveals that different cultures use differing varieties of foods and ingredients based on their food habits. This fusion of foods and cultures is influenced by their ways of life and the local environmental factors including climate.

In his study on food and religion in Southern Africa, Said (2010) elaborates that there is a strong link between culture, food, and religion as food is one of the most important aspects of religious ceremonies and expressions in variety of cultures. This is evident in almost all religions in the world, be it African traditional religions, Christianity, Judaism, or Islam. The study supports this observation by indicating that the role of food in religious and cultural practices is an important element of showing respect to their religious values and practices among cultural communities. For instance, Muslims do not eat pork because a pig is a profane or unclean animal among Muslims. Some Christian denominations do not eat meat on Fridays except fish as a

religious value and practice; except bread and wine is used in Christian holy communion, representing the body and blood of Jesus. These examples highlight the role of food in religious practices and values. Ehret (2009) shows that food is also an important aspect in cultural and traditional festivals. It is extensively used to celebrate various categories of events including end of harvesting season, marriage, coronation, initiations, etc.

In his study titled: *Food Is Culture*, Montanari (2006) explores the innovative aspects related to food, for instance, its capture, gathering, cultivation, preparation, and consumption, representing a cultural practice. Even the “choices” made by indigenous hunters and gatherers were determined by a culture of food economics (availability) and medicine (digestibility and nutrition) that led to the development of specific social structures and traditions, that is, cultures. According to him the “invention” of cooking allowed humans to transform natural, edible objects into cuisine. Cooking led to the creation of the kitchen, the adaptation of raw materials into utensils, and the birth of written and oral guidelines which formalize cooking techniques such as roasting, broiling, and frying. Richardson (2008) reveals that the transmission of recipes allowed food to acquire its own language and grow into a complex cultural product shaped by climate, geography, the pursuit of pleasure, and later, the desire for health. This shows how food, once a practical necessity, evolved into an indicator of social standing and religious and political identity within society.

In the context of this discussion, culture is conceptualized as an integrated system of learned behaviour patterns which are characteristic of the members of a society, and which are not a result of biological inheritance. In its broad sense, culture is the way of life of a particular society, which includes the roles, uses, position, and symbolism of individuals, ideas and objects such as food, in all aspects of a society; including beliefs, values, norms, taboos, institutions, language, rituals, and art. Some cultural practices can directly or indirectly influence the food habits a given society in that they prescribe the interactions between people, between people and land, and between people and food (Nyamunya 2008). The following section looks at the methodology of the study.

METHODOLOGY

The study used a combination of both secondary and primary sources to investigate the issues culture and food habits in Tanzania and Democratic Republic of Congo. The study was mostly qualitative in approach as research methods such as documentation analysis, in-depth interviews and focus group discussions were used to collect data.

The study entailed examination of previous research studies related to food and culture conducted in the various ethnic groups covered in the study. These secondary sources were available and quite adequate for drawing conclusions. Taking into consideration the community-based nature of indigenous knowledge systems, the utilization of primary sources followed a participatory approach. Community leaders from each study community were consulted on the identification of at least 5 community knowledge-holders who had a wide knowledge and experience on issues related to culture and food habits. Focus group discussions and in-depth interviews were conducted with them, including direct observations of cultural practices related to food habits, security and nutrition. In this case the sampling procedure was purposive. Oliver (2006) defines purposive sampling as a form of non-probability sampling procedure in which decisions concerning the individuals to be included in the sample are taken by the researcher, based upon a variety of criteria which may include specialist knowledge of the research issue, or capacity and willingness to participate in the research.

The qualitative data which were collected through documentation analysis, interviews and focus group discussions, were categorized and analysed through content analysis. 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).

RESULTS AND DISCUSSION

The Wachagga Child-feeding Habits

The Wachagga are a Bantu-speaking ethnic group in Tanzania, who traditionally live on the southern and eastern slopes of Mount Kilimanjaro. Primary data was collected in Marangu vil-

lage in 2012. The study revealed that the staple food of the Chagga people is bananas. Bananas are also used to make beer, their main beverage. The Chagga plant a variety of food crops, including bananas, millet, maize (corn), beans, and cassava (Ehret 2009).

As with most ethnic groups in Africa and Tanzania in particular, after delivery, the Chagga mother would be a centre of attraction to everybody in the family and community. Many people would come to see the baby; each visitor bringing something for both the child and the mother. Traditionally, the women visitors would bring milk or millet; the girls would bring firewood or grass for the domestic animals, and the men, meat or honey. Women, indigenous knowledge-holders in the community indicated that a mother could see five to ten visitors every day. The trusted ones would see and hold the baby, especially the girls and women, who came only for this purpose. As each visitor left the house, he/she would say to the parents, "May the baby have milk abundantly", and the parents would reply, "Thank you, he/she is replete with mother's milk".

The cultural significance and implications of these traditional practices is that adequate food supplies from the community members, especially relatives of the mother and the new baby was crucial for the health and welfare of the mother and the new born baby. The child will only be healthy and grow well if the mother can have adequate and nutritious food to produce more milk for the baby.

According to some community knowledge holders, if a mother did not receive this attention after delivery, she had the right to demand it from her husband and relatives, even to the extent of taking them to a traditional court. Those husbands, who were genuinely financially unstable, went to the chief and asked for help. This was usually offered in the form of meat and other foods. From a nutritional point of view the mother is supposed to be well fed so as to produce enough milk to breast feed the baby. Before the baby is breastfed, the mother is given ground seeds of a certain herb by her mother-in-law. This was to prevent future ascariasis, the infestation expected to occur in the stomach. It is a disease caused by the parasitic roundworm *Ascaris lumbricoides*. People get ascariasis by consuming food or drink contaminated with roundworm eggs (Lema 2010).

Immediately, after taking the medicine, the baby is put to the breast; suckling is believed to reduce post-partum pains. Colostrum was, and is still believed to be good for the baby. The Wachagga believe that newborns have immature digestive systems; colostrum delivers its nutrients in a very concentrated low-volume form. It has a mild laxative effect, encouraging the passing of the baby's first stool. Even animal colostrum is regarded by the Chagga and other ethnic groups in Tanzania as food for children. When a cow delivers, the milk obtained in the first two weeks is drunk only by children. It is very rich in antibodies (Mohammed 2008).

According to Chagga tradition, while the umbilical stump is still attached, the mother is not allowed to eat meat. The diet consists of millet porridge, sour milk and cow's blood. On the day the stump falls off, a ceremony is held. A ram is slaughtered; and meat is introduced into the mother's diet. Blood is obtained by puncturing the external jugular vein of a healthy cow, using a bow and arrow. The blood is collected into a wooden bowl and stirred vigorously to avoid clotting. Sour milk and a little honey are then added to the blood, and the mixture, after being well stirred, is left in a pot near the fireplace for at least two days. A small amount of the mixture (*usawo*), which is now jelly-like, is placed in a wooden bowl, mixed with more sour milk and then taken by the mother daily for a week or more as one of her main meals (Temu 2008; White 2007). The above exposition demonstrates the fusion between culture and nutrition among the Wachagga of Tanzania.

The following section presents and discusses the cultural significance of plantains to the Wanyakyusa of Tanzania. The plantain is a type of cooking banana.

The Cultural Significance of the Plantain to the Wanyakyusa

In Tanzania, three ethnic groups are known as the banana-eaters, namely, the Wachagga in the northern part of the country, the Wahaya in the north-western part, and the Wanyakyusa in the southern part. Tew (2009) shows that, among these ethnic groups, only the Wanyakyusa live on plantains. The other two ethnic groups cultivate other varieties of cooking bananas known collectively as East African highland bananas. The most important crops, in addition to plantains, are maize (*Zea mays*), finger millet

(*Eleusine coracana*), cassava (*Manihotesculenta*), and sweet potatoes (*Ipomoea batatas*). All of these food crops except plantain are generally grown in fields (*Ngundaor kyalo*). However, some tree crops are grown as cash crops in kaaja gardens, including coffee (*Coffea arabica*), cacao (*Theobroma cacao*), and tea (*Camellia sinensis*). Cardamom (*Elettaria cardamomum*) is also a popular cash crop (Mwambungu 2006).

The Wanyakyusa who are also known as the Sokile, Ngonde or Nkonde, are an African ethnic and linguistic group who live in the fertile mountains of southern Tanzania and northern Malawi. On the gender division of labour, generally, the Wanyakyusa men are responsible for the entire management of cash and starch crops, and the women manage other food crops, including legumes and vegetables. Maize and finger millet are cultivated during the same period (December to March), and maize is also double-cropped in the same period. The farmers begin land preparation during the dry season of September to October by cutting the dry grass in the field, which is followed by burning the straw. The land is left unused until the rain arrives in December. The midland farmers usually make ridges for maize, but not for finger millet. Just before sowing, the soil surface, with the ashes, is levelled, using an indigenous long-handled hoe called the *ikumbulu*. This tool is also utilised in cultivating the field, to plant banana suckers, and to weed (Ngumbuke 2010).

Mwasongo (2008) discusses plantain management by indicating that plantains are grown in a kaaja. This is a mixed home garden consisting of cash crops such as plantains, bananas, coffee, and cacao, and consumption crops such as African oil palm (*Elaeisguineensis*), taro (*Colocasia esculenta*), sugar cane (*Saccharum officinarum*), and pumpkin (*Cucurbita* sp.). Plantains and bananas are clearly the dominant crops. The kaaja is the only type of farm on which the Wanyakyusa cultivate these culturally and economically important crops for food security. Plantains and banana can bear fruit year-round, an important factor in home-garden farming. However, harvests fluctuate over the year, a phenomenon known as seasonality. According to the farmers, the highest production occurs from January to April during the rainy season, and the lowest occurs from May to November. Traditionally, the Wanyakyusa have

developed specific agronomic skills for plantain management. First, they remove excess leaves and the outer sheaths of the pseudo stems occasionally, to refresh the garden as well as to prevent pest attack. The second common practice is de-budding, which triggers early maturation or increased numbers of the fruit, as is widely observed in other banana-growing areas. The Wanyakyusa cut the male buds of all varieties after the emergence of the inflorescence. Thirdly, it is considered important to apply organic matter or ashes to the crop. The application of cow dung is common among cattle owners, with some using dried cow dung. Ash is also used as a fertilizer. The Wahaya farmers in the Kagera region also utilise ash, but only for plantain varieties, whereas the Wanyakyusa apply ash to all varieties. However, the Wanyakyusa are generally unfamiliar with de-suckering and propping, which are common practices among the Wahaya. Only a few Wanyakyusa farmers remove surplus suckers from plantains and from some banana varieties (Cathbert 2008).

The importance of the plantain in the food culture of the Wanyakyusa is testified to in that their vocabulary for plantain and banana parts is very rich, although less rich than the vocabulary of the Wahaya. The Wanyakyusa have specific words for at least five plantain parts, including the corm, leaf, and the cluster of the bunch, indicating that they have for some time distinguished the crop from other plant species. Characteristically, the Wanyakyusa have specific terms for ripe fruits, which, in addition, are different for plantains (*ifufu*) and bananas (*ibifu*). This unique feature is probably related to their oral history and to the fact that they once lived on raw plantains and bananas. The foundation of their culture is the plantain. Another unique feature with regard to the importance of plantains and bananas in the culture of the Wanyakyusa is demonstrated by the practice of women weaving mats called *bulili luteefu*, and *ipuku*, from banana fibre. *Bulili* is a large mat of about 1.5×3 m made from dried leaf petioles, whereas *luteefu* is a smaller mat of about 1×1.5 m woven mainly from dried sheaths (Tandika 2009).

Cathbert (2008) illustrates some of the social aspects of plantains in the Wanyakyusa paternal society. For instance, in one instance during the chieftom period, a chief sent a man to all villages in his chieftom to announce that cut-

ting bunches and even leaves of young plantain plants was prohibited, and that other foods such as sweet potatoes, beans, and cowpeas should be eaten. The aim of the chief's directive was to encourage growth of plantains and bananas in all homesteads, making the country appear rich and productive. This case indicates that the banana was a symbol of the prosperity of the community. The crop also mediates the gender values of the people. For example, in the rain-making ritual of the Wanyakyusa, the plantain symbolized man; and the sweet banana symbolized woman. The plantain has a more important role for the Wanyakyusa than do other bananas. This representation of gender value is probably owing to the paternalistic society of the Wanyakyusa. According to community knowledge-holders, every clan, and almost every household, has a sacred plantain plant or grove for ceremonies in which the clan head prays to the ancestors. The plant or grove is never cut down; and its fruits are not eaten by women, because they believe that the spirits of their ancestral fathers reside within. The plantain has historically been significant for the Wanyakyusa, not only as a food resource, but also as a socio-cultural resource (Ngumbuke 2010).

The following section presents the food culture of the Wamaasai in an arid and semi-arid environment of Northern Tanzania.

Food Culture in an Arid Environment: The Case of the Wamaasai

This section is based on the argument that, although food is first and foremost a necessity for supporting physical activity and survival, as well as the nutrition and health of the people, food also plays a major role in socio-cultural activities, and to a certain extent it defines ethnic cultural identity. For instance, among the various ethnic groups of Tanzania and the DRC, different foods have particular meanings and symbolism attached to them in different natural environments. This is demonstrated by the Maasai food culture, the people living in an arid and semi-arid environment in Northern Tanzania.

The Maasai are pastoralists who live on the dry steppes of Northern Tanzania and Southern Kenya. Milk, meat, blood, and milk products are central to their food culture. Within the arid environment, water is a limited resource, with acute

water shortages for livestock and household use occurring through at least several months of the year. In addition to their importance for livelihoods, livestock are central to the Maasai culture, society and identity. Cattle play a key role in important ceremonies, such as circumcision, in which blood is drawn. In other ceremonies, skins have a sacred function; and cattle are the means of appreciation given to spiritual leaders at the time of the ceremony. In addition, a dowry in the form of cows forms an essential role in cementing links between families; the marriage of a man and a woman contributes to traditional economic security and is the foundation into which children enter society. Cattle are an essential part of exchange typical of many other social relationships. Cattle husbandry defines the organization of society; a male elder heads each household and livestock unit, with a clear differentiation of gender and age-defined roles around milking, grazing, and other aspects of pastoralism. Further, traditional forms of healing draw on animal-sourced diets, including milk, soup, and blood (Paul 2010).

Nutritionally, the Maasai rely on meat, milk, and blood from cattle, for protein and energy needs. The study revealed that the foods and their by-products were consumed either alone or in combinations, in differing contexts by differing age groups. Meat was usually consumed during special occasions: circumcision and marriage ceremonies, among others. Soups, which were usually eaten with added herbs, were prepared whenever meat was available. Meat and bones were boiled in water with herbs. In some cases, herbs were boiled in water first, after which the water extract was added to the prepared soups. Blood was an exceptionally good source of iron and calcium and contributed protein and vitamin A. It was consumed whenever an animal was slaughtered, or when a household member lost blood, principally in childbirth and circumcision. Despite the broths (mixtures of blood and milk) being relatively low in protein and iron content, they provided appreciable amounts of calcium. They were consumed on special occasions that called for the slaughtering of animals. Milk is an important food for the Maasai. According to the Maasai knowledge-holders, milk consumption patterns have changed only minimally over time, compared with blood consumption. Milk and milk products were consumed any time of the day by all age groups, although these products were highly recommended for young chil-

dren. Kamura (2009) identifies four categories of milk products consumed:

- ♦ Fresh milk – obtained from the cow and ingested without being boiled. People of all ages drank milk whenever it was available. It was an important source of protein, energy, and calcium among the people.
- ♦ Sour milk (*kule naisamis*) was made by fermenting the fresh milk for a day (mostly overnight) at room temperature. Young boys, not yet at the circumcision age, were common consumers.
- ♦ Yoghurt (*kule naoto*) – milk was fermented for about four days and stored in airtight containers. It resembled the conventional yoghurt. All age groups took this milk. Yoghurt in the Maasai community had other functional health benefits as a result of the probiotic micro-organisms present.
- ♦ Cow colostrum (*isikitok*) – when still thick and yellow in colour, this was considered nutritious. It was mostly given to young children, particularly boys. Adults did not take colostrum unless it was mixed with herbs. Cow colostrum was shown as an important source of protein and vitamin A, especially for children.

It was a common practice to add herbs to fresh or boiled milk for various reasons. These additions were generally considered nutritious and possessing medical functions; it was widely believed that additions of herbs to milk helped children to fight diseases.

Saitoti (2010) examines the nutrient composition of herbs consumed by the Maasai in their arid environment. He narrates that herbs were added for flavour and/or for nutrition and medical functions in mainstream Maasai food, such as meat, blood, soup, and milk. Some herbs were boiled in water directly and added to milk or soups, while some were consumed “as is”. Some of the herbs commonly used had attributed hypolipidemic and antioxidant properties, thus offering one explanation for the traditionally low incidence of heart disease among the Maasai, despite high consumption of animal-source foods. The herbs were prepared and consumed in various forms. Almost all herbs were available throughout the year, although their availability is most likely to improve during the wet seasons. Herbs were generally consumed at a specific season.

Wilson (2008) had earlier examined the traditional wild fruits and roots consumption among the Maasai. He observed that, among the Maasai, wild fruits and roots are consumed mostly by women and children. Most of the fruits were not as sweet as cultivated fruits. Some were bitter and often unpalatable to non-Maasai. Though many were small-sized, they were nevertheless consumed in large quantities by children and women, as a significant source of micronutrients during their months of availability. As in the case of herbs, most fruits were found to be insignificant sources of vitamin A. Edible portions of *iyier*, however, contained 6.13 mg/100 g of β -carotene while other fruits provided negligible amounts. All the fruits provided at least some vitamin C, with *Sagararam* (which is also consumed by goats) being exceptionally high (762 mg/100 g). By comparison, oranges contain 60 mg/100 g of vitamin C. *Iltapaila* contained about twice the amount of vitamin C as oranges, while *iyier* and *lamuriak* had amounts comparable with oranges.

Ilpupuo had high amounts of iron and was not comparable with other fruits. *Sagararam* and *lamuriak* had higher levels of zinc relative to other fruits. All fruits analysed contained at least some selenium, except for *iltipaila* and *sagararam*. *Ositeti* and *olmisigiyo* had, however, the highest content of selenium. All fruits had calcium in some amounts, except for *iltipaila*, with *ilpupuo* and *ositeti* containing relatively higher amounts. No single fruit provided appreciable amounts of more than two micronutrients. *Ilpupuo* contained iron and calcium, although the bio-availability of the former is unknown; *ositeti* contributed both selenium and calcium. *Sagararam* can be relied on as a relatively good source of vitamin C and zinc (Saitoti 2010).

The study also established the food consumption patterns in the Maasai life-cycle. It was found that among the Maasai, breastfeeding was the norm for children up to two years of age. In addition to breast milk, young children were fed cream from cow's milk, commonly known as *engorno*. The cream was extracted by boiling milk and leaving it to stand, allowing the cream to separate, after which it was scooped from the top and given to young children. A common practice of adding burnt donkey-dung to the cream before boiling and feeding to young children (most common at three months of age) was believed to help prevent colds and pneumonia.

Fresh milk was also given, but rarely without additives. It was common to add herbs, which were first boiled separately in water and the resultant extract added to milk. The herbs were added for nutrition as well as medical functions as described above. Most of the herbs were roots, believed to be growth stimulators, dewormers, offering rehydrating and anti-diuretic properties, among other functions. Herbs formed an important part of young children's diets (Taban 2007).

It was found that, before circumcision, girls and boys consumed the general diet consumed by adults. Children, however, were particularly good gatherers and consumers of wild fruits. They gathered and ate many and a wide variety of wild fruits at their own leisure, particularly when they took animals for grazing. They shared their "harvest" mostly with their mothers and sisters. Male adults considered fruits as food for children and women, consuming relatively little.

Immediately after circumcision at the age of 12 to 13 years for girls, and 15 to 16 years for boys, special foods were provided. For girls, a mixture of sour milk and fresh blood (*osaraoi*) was given. Until several months after circumcision, these young people were not allowed to drink plain water. They were encouraged to add milk to water before drinking it. Dry meat stored in solid animal fat (*olpurda*), fresh milk, and liquid fat in blood were all commonly consumed. A number of herbs were also consumed. Following circumcision, boys were encouraged to drink yoghurt and blood daily, on an hourly basis, or whenever hungry. Dried meat, which had been stored in rendered fat, and a mixture of fresh milk and blood, were given. Post-circumcision, boys were officially called the "morans". Their official foods were fresh milk, fermented milk (equivalent to yoghurt) and meat (*inkiri*) in large quantities. The use of herbs in soups or for consumption "as is" was common, and a relatively wider variety of herbs was used by boys in comparison with the girls (William 2009).

In general, adults (men and women) consumed a variety of staple traditional foods (meat, blood, soup and milk), as well as foods common among Tanzanians and other East Africans, such as ugali (maize meal), *githeri* (a mixture of maize and beans), kales, cabbages, and beans. Special recommendations pertained to pregnant and lactating women. Particular parts of meat were earmarked during slaughter for pregnant women,

including the liver and kidneys. Dried meat set in solid fat, and fresh and fermented milk were also given at this stage. The use of herbs was also common. Women were encouraged to eat various recommended wild fruits and roots. In the case of postnatal and lactating women, it was established that immediately after delivery, women were given the following (Wilson 2008):

- ♦ liquid fat for cleansing;
- ♦ concentrated solutions of water and sugar, for energy;
- ♦ fresh blood and milk;
- ♦ porridge with blood added;
- ♦ fresh milk;
- ♦ soup with various types of herb

The following section presents and discusses the Nyarubanja Farming System among the Wahaya in Tanzania as an example of an African indigenous farming system for food-security.

The Nyarubanja Farming System and Food Culture of the Wahaya in Tanzania

The Wahaya who live in the densely populated part of the western Lake Victoria basin of Tanzania, have developed a unique indigenous banana-based farming system for food-security, commonly known as the Nyarubanja system. The land-use in this farming system is characterised by intensively cared for home-gardens called *kibanja*, and an open grassland, *lweya*, where cattle can graze. Cattle manure contributes to organic farming in the *kibanja*. As a farming space and farming system, the *kibanja* is a perennial garden, not only for bananas, but for various crop species. A Wahaya farmer has an intimate knowledge of the crops and the micro-environment of his/her own *kibanja*. Major crops grown in the *kibanja*, besides bananas and coffee, are maize (*Zea mays*), and the common bean (*Phaseolus vulgaris*), an essential indigenous protein source in the Wahaya diet. The two are cultivated mainly for subsistence and densely cropped once a year between banana stands. At the beginning of short rainfalls in September, maize is sown in most gardens by hand, followed by the bean after about a week. Most other crops are rather minor, and randomly arranged according to the preference of each household. Coffee (*Coffea* spp.) has been the most important cash crop since the introduction of the Arabica type (*Coffea arabica*) by Christian missionaries in the early 20th century.

However, coffee production stagnated mainly due to its unfavourable selling price. Bananas and coffee are mostly grown mixed. The crop arrangement in the *kibanja* shows a tendency for the banana to be grown closer to the homestead and coffee more around the margins. This is partly because infertile soils of the peripheral area are often not sustainable for banana growth. With such spatial arrangement, the *Nyarubanja* farming system has historically and traditionally provided the Wahaya with a permanent cultivation space for both the staples and the main cash crop (Patrick 2008).

The management of the perennial crops, including bananas, is basically the responsibility of men. In contrast, in neighbouring southern Uganda, women perform this role. As a vegetatively-propagated crop, the banana grows and multiplies under most humid conditions. It needs less labour input than does the managing of other starch crops. In spite of this, the Wahaya farmers have developed more land-intensive permanent husbandry with accumulated local knowledge, and with several kinds of indigenous agricultural tools. Linguistically, the detailed classification of banana parts reveals the Wahaya's deep knowledge of the crop. The local varieties of banana grown by the Wahaya may be divided into three categories according to utilisation: the cooking banana (*kitooke*), the brewing banana (*mbire*), and the roasting banana (*nkonjwa*). 'Kitooke' is the most important banana as a staple food, which is consumed boiled often with the common beans (Saguti 2009).

A *Kibanja* is a zero-tillage farmland always covered with organic litter. Any type of crop residue such as banana leaves and maize stalks is utilised. Despite increased cultivation in *lweya*, the prime importance of the *kibanja* continues, owing to preference in banana and socio-cultural appreciation.

Food Culture and HIV/AIDS

An examination of food culture and HIV/AIDS is necessitated by the tendency to look at HIV/AIDS in terms of health costs and loss of skilled labour, neglecting its impact on the agricultural sector, particularly its devastating effect on food-security. A large number of people in rural areas, many of whom work as unskilled labour in the cities, have become HIV-infected and are too ill to work. Moreover, as the generations of indigenous agricultural knowledge-hold-

ers die off prematurely, they cannot pass on what they know about the various local plant species and their uses as food and medicinal sources. Indigenous knowledge and biodiversity are one of the most important, and often the only local resources in most African indigent and rural communities. Their significance increases as other resources dwindle or disappear (FAO 2010).

This concern was expressed by most knowledge-holders in various regions of Tanzania including Tanga, Kilimanjaro, Coast, and Morogoro. It was argued that the HIV/AIDS pandemic threatens community-based resources, by limiting the transmission of indigenous agricultural knowledge and practices for food security to the young generations, hence eroding the basis of sustainable community and household food-security. For instance, one community knowledge-holder in Mbuzii, Lushoto District, Tanga Region expressed the following:

"Traditional knowledge on food security often dies with the sick farmers because of HIV/AIDS pandemic..... Some of these people have a lot of knowledge and experience on how to adapt different crops to the local conditions. When they die, so does their knowledge....."

He added that, in times of severe labour shortages, people plant fewer varieties of crops, as a way of saving time and money.

This study has the opinion that a critical examination of indigenous agro-biodiversity is important because it addresses the whole indigenous plant resource diversity used and managed by most local communities in the rural areas for food-security and sustainable livelihood. This includes a large diversity of crop varieties that small-scale farmers conserve and cultivate. It provides the basis for their subsistence and income generation as it includes wild food and medicinal plants they use for food, nutrition, and health care. It incorporates aspects such as cultivation practices, uses, and genetic resource management of the respective plant species. However, community knowledge-holders expressed the concern that agro-biodiversity and the associated indigenous knowledge tend to be neglected in policy development and programmes related to agriculture, natural resource conservation, and rural development. They are neglected to the extent that their use and dignity have even declined among rural people themselves. However, these indigenous crops often represent strategic crop genetic resources in

household food-security and nutrition, while providing many options for improving rural livelihoods and for addressing evolving needs, such as the food security and nutrition concerns in the context of HIV/AIDS. These comprise crops and crop varieties that have the following strategic values and potential:

- ♦ advantageous adaptation to local agro-ecological constraints, such as drought and poor soils;
- ♦ provision of superior nutritional sources, such as many neglected legume crops that provide high protein supplies; and leafy vegetables that are an excellent source of micronutrients;
- ♦ sensitiveness to AIDS-related labour stress, such as non-labour intensive crops;
- ♦ favourable characteristics for food processing and preservation;
- ♦ unexplored economic opportunities; and
- ♦ relevance and value in local cultural dynamics and food habits.

Page (2009) adds that the HIV/AIDS pandemic generates an additional paradox regarding agro-biodiversity and indigenous knowledge. HIV/AIDS disrupts indigenous agricultural systems, socio-demographic structures, and community dynamics; it further impairs the maintenance of agro-biodiversity and indigenous knowledge. At the same time, as poor households and communities become severely affected and impoverished, agro-biodiversity and the associated indigenous knowledge become increasingly important for achieving food security, while coping with the specific needs and changes owing to HIV/AIDS.

For example, respondent community knowledge-holders in the Tanga Region, Tanzania, held the view that many traditional crops such as millet, sweet potatoes, and so on, are resilient, requiring less attention than cash crops. They form valuable food-security contributions to households in which able-bodied people are already under extreme stress. These plants also require fewer material inputs, such as fertilizer, as they are adapted to the local environment. This allows the financially strapped to save the money they have for medicines or other essential supplies.

On the issue of gender and indigenous food-security against HIV/AIDS, Lema (2010) indicates that in Tanzania as in most African countries, rural women are the dominant actors in

small-scale agriculture. They are responsible for the selection, conservation and management of seed stocks; selection of the most nutritious plants for feeding their children, looking after the home gardens, and taking on post-harvest food processing and preservation. Their knowledge, passed on to their children through songs, myths, and other oral media, contains the basis for food-security and nutrition within their communities. However, most of them suffer enormous vulnerability, discrimination, and increasing workloads, and this has been aggravated by the HIV/AIDS epidemic. This implies that government and development agencies involved in developing sustainable strategies against the HIV/AIDS pandemic should ensure that the work done by women to preserve biodiversity and indigenous knowledge is recognized, appreciated, and supported (World Bank 2008).

Culture and Food Habits among the Bayaka in the Democratic Republic of the Congo (DRC)

The study examines the issue of food culture including habits of the Bayaka from their own perspectives. The researcher originates from the community and knows the culture and indigenous language of the people studied. The study was based on the argument and observation that traditional food systems and habits play significant roles in maintaining the well-being and health of local communities. They are based on food resources which are locally available, affordable and culturally acceptable hence sustainable. However, observation in these indigenous communities including the Bayaka, indicates that their traditional food bases, knowledge and food cultures are increasingly being eroded by the invasion of foreign food resources and cultures which are technologically more powerful. These new food resources are expensive, not locally produced, based on foreign habits and values and hence not sustainable. The erosion of the indigenous food bases has resulted in the use of fewer species, decreased dietary diversity due to household food insecurity and consequently poor health status.

The Bayaka are among the indigenous peoples of the Congo rainforest in the DRC. In focus group discussions the respondent community members defined indigenous people in their local language as those people who retain knowledge of their land and food resources including food habits rooted in the historical continuity

within their area of residence. However, they went further to elaborate that the local food systems and habits that are currently being used might include some foods used by other cultures outside of the local community and culture, for example, cassava, cocoyam, etc. They described “traditional foods” as those foods which local people have access to locally, without having to purchase them, and within traditional knowledge and the natural environment from farming or wild harvesting. They conceptualized “market foods” in their own language as those foods which enter local communities often through globally industrially sponsored retail outlets, and which have to be purchased: examples are sugar, oil, etc. They also revealed that there are cases where local people have to purchase some of their culturally based traditional foods including wild meat, vegetables, fruits, etc. from others with land and/or time to harvest them.

This section describes and discusses the food resources and cultural habits of the Bayaka. The Bayaka are a Bantu-speaking ethnic group living in the south-western part of the DRC, that is, the Kwango District, in the Province of Bandundu, and the north-eastern parts of Angola. The environment of the Bayaka is a mixture of wooded plateaux and savannahs that parallel the Kwango and Wamba Rivers. The climate is usually cool and dry. There are two seasons in the region; a wet season lasting from October to March, and a dry season lasting from April to September. The Bayaka live mostly from agriculture as the main source of livelihood.

Cultivated and wild edible plants provide the main source of vegetables eaten as side dishes with cassava food (luku or kabuka). Hunting and trapping of wild animals and birds, and fishing in deep rivers provide game and fish as sources of proteins. Hunting of wild animals, making fields in the forest, and fishing in deep rivers has a cultural role and serves as a symbol of manhood, as opposed to fishing in small streams, gathering wild edible plants, and cooking, which are believed to be the tasks of women. However, culturally, there are animals which may not be hunted by the Bayaka. These include the hyena and birds such as owls (fungu) whose sound announces bad news to the society. Traditionally, the Bayaka do not eat domesticated dogs and cats. Women are not allowed to eat meat from snakes (nyoka) or turtles (kafulu). These are believed to impact on their fertility - a woman without children is a cause of concern to the

Bayaka society. Therefore, avoiding certain types of foods is a protection for women in the cycle of their lives. An abundant number of descendants is a source of pride for Bayaka women and family. Domesticated animals for meat include pigs, goats, and chicken, whose meat is eaten at special occasions (circumcision, births, special rites, and at marriage ceremonies). Other wild-food resources include insects such as grubs, caterpillars (mikwati or mopane worm), and crickets, which are consumed seasonally, in combination with cultivated or wild edible plants as side-dishes.

The wild, edible plants include amongst others the much praised *Gnetum africanum* (*fumbwayiyaka*, *kikongo*, *lingala*) which grows in the forest and is easily accessible all year long. Fumbwa is cooked with peanut butter (*moamba nguba*) and palm oil (*mafuta*) obtained from the palm tree (*Elaiesguinnensis*). This is a rich dish believed to provide iron. It helps to reduce excess sugar levels in the blood. Seasonality is an important factor in the diet of the Bayaka because some wild edible plants can only be gathered in the forest during the rainy season. Young wild yam stems (*ntoondo*), wild amaranthus (*biteku-teku*), fungus, mushrooms, and other seasonal plants (such as *mbondi*, *katapa*) provide side-dishes eaten with the cassava. Cassava leaves (*feuilles de manioc*), *Corchorus solitorius* (*dongodongoyamakasa*), leaves and seeds of *Curcubita maxima* (*mbika*), peanuts (*Arachis hypogea*), fruits of *gombo*, leaves of *Hibiscus sabdariffa* (*ngai-nagai*) and *Ipomea* spp (sweet potatoes) known as *matembele*, beans (*Phaseolus*), spinach, curcumin, amaranthus, tomatoes, solanum, sweet potatoes, and ground peanuts are commonly found in the diet of the Bayaka.

The palm tree (*Elaiesguinnensis*) is another versatile plant in the Bayaka culture which provides the main lipid sources; the palm oil (*mafuta ma ngasi*), obtained from the sap of palm nut, and a variety of palm wine (*malafu ma tsamba*). Midribs of leaflets of the palm tree are used for making brooms; leaves for baskets, and for covering huts. Other varieties of palm are tapped for “wine.” Palm wine from the *Raphia* species (*malafu ma yimba*) is a very important food beverage in the traditional Yiyaka-speaking communities. Traditional ceremonies such as asking a woman for her hand in marriage, paying of the dowry, debating on important issues and cultural rituals, are accompanied by palm wine (*malafu*)

and the chewing of various kola seeds (*Cola acuminata* or *Garcinia kola*).

Mohammed (2008) describes the gender aspects of food culture among the Bayaka. Women play a central role in food-security and nutrition in terms of food gathering, cultivation, harvesting, transportation, and postharvest activities such as food storage and processing.

Babies are traditionally fed breast-milk and water for the first days of their lives. Breast-feeding mothers are often taken care of by older women in the village who generally ensure that newborn babies are correctly breast-fed. Based on a patriarchal management of the family, the father and uncles of any newborn are reminded by elders to provide the breast-feeding mother with a reinforced diet regimen containing various products from wild edible plants, hunting, and fishing. Babies are then gradually introduced to adult foods by means of a soft cassava paste eaten with non-chili sauce of any side-dish made especially for the breast-feeding mother. Cow and goat milk are rarely found in the traditional diet of newborn babies, who depend on breast-milk for their first months of life.

According to the data collected by Hewlett (2008), an American anthropologist, who spotted male breast-feeding among the Bayaka, Bayaka fathers are within reach of their infants 47% of the time – this is apparently more than fathers in any other cultural group on the planet. He categorised these fathers as “the best dads in the world”, after noticing that babies were sometimes being suckled by their fathers.

The Cassava Culture among the Bayaka

The cassava (*Manihot esculenta*) is a multi-purpose plant in the life of the Bayaka. It provides the main staple food, made of cassava flour, locally known as *luku* (in Yiyaka and Kikongo languages) or *fufu* in Lingala. Both adults and young children eat the cassava food which is prepared by mixing boiling water vigorously with cassava flour using a wooden spatula called *miku* in the Yiyaka language. The paste obtained is eaten with side-dishes such as cassava leaves and other cultivated or wild edible plants which have nutritional value. The cassava leaves are prepared by pounding them in a traditional mortar (*yanda* in Yiyaka) with a pestle (*misu*), thereafter cooking them in water with various tradi-

tional condiments, spices (*Capsicum annum*), and palm oil. The leaves provide a common relish called *saka-saka* (Yiyaka, Kikongo) or *pondu* (Lingala), or *sombe* (in Kingwana/Swahili). Other sources of carbohydrates include maize, sweet potatoes, beans, peanuts, wild fruits, and wild berries, yams, taro, pumpkins, peas, bananas, and plantains. Although rice is eaten, it is not the staple food of the Bayaka. Those who do not eat cassava rely on yams (wild and cultivated), taro (*Colocasia spp*), and maize processed traditionally to produce maize flour, which is used to cook a paste called in Yiyaka, ‘*kabuka*’.

Processed cassava tubers “cosettes” and palm oil are a source of income for Bayaka people. They sell these products in the neighbouring urban centres. The Bayaka have a way of storing of cassava tubers in the form of “cosettes”. They first soak the freshly harvested cassava tubers in water, generally next to the field, for three to five days, depending on the bitterness of the cassava tubers. The product is then collected and sun-dried. The final product, known as “cosettes” in French, may be stored for many months before being sold. Another traditional way of storing cassava food is to make the cassava bread known as *chikwange* or *yikwanga*. This is either made directly by cooking cassava tubers after a prolonged steeping in water containing banana leaves or other wild *Maranthaceae* leaves (especially *Megaphyrynum macrostachyum* known as *nkaya za ngungu* in Yiyaka). These are believed to give a special taste to some food, and are preferred to bananas leaves (*Musa spp*). Another way of storing the cassava food is by cooking cassava flour to first obtain the “*fufu*”, then shaping it into small rolls (similar to hot-dog rolls) which are stored in *Maranthaceae* or banana leaves, and cooked to obtain a hard product which may be stored for many weeks. The dish, which is commonly known in the local language as “*chikwange*” or “*yikwanga*” is used in times of food scarcity owing to poor weather conditions, or eaten by people travelling for long journeys. The Bayaka also use cassava leaves mixed with palm oil (*mafuta ma ngasi*) for treating ailments such skin inflammations. Lipid products derived from meat of certain snakes (python) are used as precious medicine in treating ailments. Hunters use python oil to protect themselves from other small venomous snakes, spiders and scorpions bites.

Skins of small cats are used also in preventing and treating skin inflammations.

CONCLUSION

The investigation is based on the premise that culture has an impact on food habits, including agricultural systems. This was demonstrated by examples from various ethnic communities in Tanzania and the Bayaka in the DRC. The invasion of new food resources and foreign habits in African local communities, especially the younger generations and the impact of the HIV/AIDS pandemic on indigenous food resource bases including food diversity was also examined. A number of community knowledge-holders, especially women, die of AIDS, taking with them a great deal of their indigenous knowledge and experience on environmental adaptation and food culture. Moreover, in times of severe labour shortages, people plant fewer varieties of crops in order to save time and money.

RECOMMENDATIONS

The following recommendations are made: first, policy-makers, researchers, development agencies, and other stakeholders should take the role of culture and gender seriously in promoting food culture as part of indigenous knowledge systems in African local communities. Second, there should be a realisation among the various stakeholders involved in the promotion of indigenous food resources that, while some food cultural practices may have negative effects on the well-being of people, especially among women and children, some food cultures provide valuable opportunities for improving community-based food and nutritional security. These should be identified, documented and incorporated into the educational system for sustainability.

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