HOUSEHOLD LIVELIHOODS, MARKETING AND RESOURCE IMPACTS: A CASE STUDY OF BARK PRODUCTS IN EASTERN ZIMBABWE

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Commercialization and Institutional Arrangements Involving Tree Species Harvested for Bark by small-holder farmers in Zimbabwe

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Abstract

Non-timber forest products are increasingly being commercialised by smallholder farmers and urban-based healers and vendors. In this paper we highlight institutional arrangements surrounding the harvesting and marketing of three tree species harvested for their bark: Adansonia digitata, Warburgia salutaris *and* Berchemia discolor. *Bark from* Berchemia discolor *and* Adansonia digitata *is used for craft production. Bark from* Warburgia salutaris *is believed by many healers to treat a panacea of ailments and the tree is threatened with extinction in Zimbabwe. Increase in commercialization is linked to droughts, tourism, hard economic conditions prevailing in the country and poor access to formal health services. Some studies have also linked over-exploitation and commercialisation to weakening state and traditional institutions. The studies therefore sought to investigate institutional arrangements and sustainability issues related to the three tree species in Zimbabwe. Local institutions were not effective in the sustainable management of the resources. There was little evidence of new institutional arrangements emerging around these particular resources, as a result of the changes in degree of commercialisation. The bark resources were still largely communally owned and there was no evidence of increasing domestication, except in the case of* Warburgia, *where there was a project promoting tree planting. Despite increasing commercialisation and demand for these products there are few examples of sustainable harvesting. The evidence is that commercialisation cannot be used to drive conservation agendas.*

Key Words: *Warburgia salutaris*, *Berchemia discolor*, *Adansonia digitata*, commercialization, non-timber forest products, availability and decline, market trends and strategies, economic value, institutional arrangements, sustainability.

Introduction

The notion that commercialisation of non-timber forest products may form the basis for conservation of tropical forests is popular in development and research circles, the idea being that capturing value may lead to sustainable management (Allegretti 1990). Arnold and Perez (1996) highlight that trees may actually be included in the farming systems if they are realised to be commercially important – commercialisation leading to scarcity, domestication and privatization of the resources. Many arguments in support of commercialization of NTFPs suggest that the activity is sustainable and facilitates increased value of indigenous trees (Arnold and Perez, 1996; Brigham *et al.*, 1996).

In Zimbabwe, many studies have focused on local level institutions and their effectiveness in terms of ensuring sustainable harvesting of natural resources. Some studies have focused on traditional institutions such as kraal-heads, headman, chiefs

and spirit mediums, while others focus on local state-sponsored institutions such as Village Development Committees (VIDCOs) and Ward Development Committees (WADCOs) (Sithole and Bradley, 1995; Mukamuri 1989, 1995). There have also been efforts to study the effectiveness of central government agencies in enforcing environmental laws and regulations. The studies suggest that both state and traditional institutions operating in the rural areas have been weakened by lack of legitimacy and unfavorable economic conditions. Studies indicate that traditional rules and institutions have weakened over the years. The natural drive towards modernity has resulted in lack of recognition and respect for traditional leaders. Local level institutions are too weak for them to be able to control individual actions, particularly over common resources. The institutions are not legally constituted, making them powerless over individual and group activities.

Critics of VIDCOs and WADCOs have labeled them as conduits of propaganda for the state and the ruling party, ZANU (PF). At the local level the institutions have been challenged as to their legitimacy and authority (Mukamuri 1995). These local level conflicts have had serious implications for environmental management at the village level. For example, many reforestation initiatives have failed because of the contestations.

Campbell et al., (1996) question the effectiveness of government departments in regulating natural resource harvesting and use. Braedt and Gunda (2000) suggested that commercialization of woodland products was taking place within a framework of inappropriate rules and regulations governing resource use in communal areas. The local rules are largely weakened by the entrance of young people, particularly unemployed immigrants who have no respect for existing traditional rules, into the wood-based craft market business. They also argue that many of the government rules are unpopular because they were enacted during the colonial period. Overall, much of the present use of woodland resources is largely unregulated or open access and this has resulted in deforestation (Arnold and Stewart 1991; Messerschmidt 1993).

Internationally, there is recognition that non-timber forest products are important in enhancing rural livelihoods and that their commercialization is increasing (Arnold and Dewees 1995; Arnold and Perez 1996). However, despite their relevance in enhancing incomes, there is little evidence of sustainable harvesting of the products (Godoy and Bawa 1993; Boot and Gullison 1995). Kaplan *et al.,* (1998) noted that future availability of tree species might be jeopardized by unsustainable harvesting practices. On the other hand, mobilizing smallholder farmers to grow more trees has been identified as the most meaningful way to avert shortages of fuelwood and other benefits from tree products (Eckholm 1975, 1979; FAO 1978).

This paper investigates the institutional arrangements surrounding three key species harvested for their bark by smallholder farmers in rural Zimbabwe. It attempts to link any forms of commercialisation of these high value resources to management practices within an open or common access regime. International and local literature is reviewed and revisited to make contributions that could lead to more information on environmental processes.

Study areas and methods

Information presented in this paper was collected from several locations that are located in three districts of Zimbabwe. Studies on *Adansonia digitata* were conducted around the Hot Springs area, in eastern Zimbabwe. The area was divided into two clusters, namely Jinga and Gudyanga Village clusters. The division was influenced by earlier observations that bark use and marketing was very different between these areas (Campbell *et al.,* 1995). The hypothesis was that resource management institutions in the Jinga Village cluster, which used less bark, were stronger and more effective than in the Gudyanga Village cluster, which uses and markets more baobab bark.

The *Berchemia discolor* study was largely concentrated around the Kariangwe Area of Binga District, northwestern Zimbabwe. The study was located around this area because of early indications that this was the area where craft production was more formally organized and hence there would be some form of institutional arrangements governing harvesting of *B. discolor* bark. The Binga Craft Centre (BCC) has been operating in the area over the last decade and it was in control of all the craft production and harvesting of bark.

For the *Warburgia salutaris* study, data was collected from two areas. One of the study areas was Tanganda and the other was Chief Mapungwana's area, both located in Chipinge District, eastern Zimbabwe. Prior information indicated that Tanganda was a market for *Warburgia* for many healers in the country. Chief Mapungwana's area was chosen because interviews with taxonomists at the University of Zimbabwe suggested that the area use to be the major source of the bark. In fact, tree guides show that the tree is endemic to this study area in Zimbabwe. In both these areas *Warburgia* seedlings have been distributed to farmers by an NGO in an attempt to re-introduce the species and provide cash income.

The study was largely based on open-ended, key informant interviews and checklists. The range of informants included collectors, vendors, weavers, people found at various markets, traditional healers, village leaders, government officials and representatives of non-governmental organizations. One of the authors, Witness Kozanayi, stayed in each of the study areas for one and half months, thereby being in contact with the communities on a daily basis.

Uses of the species

Bark from the three species is used for different purposes. *Adonsonia digitata* bark is used for a variety of purposes. Bark processed into fibre is mostly used for making crafts such as hats, mats and baskets. Small quantities of baobab bark are used for medicinal purposes. For example, bark roots from young baobabs are used for 'symbolic' fattening of babies. Pregnant women also use bark from mature baobabs to enlarge their birth canals in order to reduce pain during delivery.

Berchemia discolor bark is largely used for making a purple to blue dye. The dye is used in the coloring of baskets, hats and other artifacts made from *Hyphene*

petersiana and *Adansonia digitata*. The bark is largely derived from the roots and trunks of mature trees.

Warburgia salutaris is exclusively used for medical reasons. This is largely because the tree is believed to treat a panacea of ailments. In term of national significance, *Warburgia salutaris* is the most sought after tree species, particularly by traditional healers (Cunningham 1993). Apart form the bark derived from the roots, stem and branches, healers also use the leaves. Reports from the study areas indicate that in some cases urban-based healers, collectors and vendors collect 'whole trees' which they crush into powder and sell in urban areas where the demand is high. Apart from the medical uses of the bark, it is also used for a plethora of other uses. For example, the bark is used in funeral and sex-related rituals. In the funeral rituals the bark is used to chase away evil spirits, as well as ritually cleanse the clothes of the deceased. In sex-related rituals, the bark is used to cleanse husbands of adulterous wives, and to cleanse oneself if one had a sexual relationship with a women who subsequently died. The bark is also used as a charm during employment seeking. *Warburgia salutaris* is therefore an important tree species during this time of economic hardships, characterized by unemployment and retrenchments.

Decline in resources

There appear to be serious resource problems with respect to all three species, though many smallholder farmers who harvest bark from *Adansonia digitata* and *Berchemia discolor* do not recognise a problem. Not recognising the problem is largely because harvesting does not generally kill the tree directly. However, informants recognized that there has been increased harvesting over the last few years due to increases in commercialization. It was said tree deaths were being avoided by discouraging people from complete ring barking and allowing the tree's bark to re-grow. For the baobab, people waited for periods ranging from 2-3 years before harvesting the same portion. However, the study found out that people were increasingly harvesting bark from roots of *Berchemia*. Informants mentioned that they were harvesting bark from roots because of its good quality when compared to bark from trunks. We suspected that people were turning to the roots because of a decrease in the number of trees.

The scenario is completely different for *Warburgia*, which has almost got to the stage of extinction in Zimbabwe. There were no trees known to exist naturally. Informants mentioned that most of the bark was now being smuggled from South Africa and Mozambique. Only a few healers mentioned that they knew of the existence of some trees but were not willing to inform the researchers about their location. However, the enthusiasm shown during the tree planting indicates that there were very few trees, if any, in existence locally. Planting to reverse deforestation does seem to be possible with relatively fast growing species such as *Warburgia* and *Berchemia*. Baobabs are slow growing and planting is unlikely to be popular with locals. *Warburgia* planting is also possible because it is a high value species.

The efficiency of state rules

The state in Zimbabwe has instituted legislation and policies that are aimed at protecting and controlling harvesting of tree resources in communal areas. The main laws are enshrined in the Natural Resources Act (1941, 1975), Forestry Act (1941)

and the Communal Area Forest Produce Act (1986). Both the Natural Resource Act and Forestry Act ban indiscriminate harvesting of trees from specified areas, for example, riverine and steep areas. The Communal Area Forest Produce Act allows limited harvesting of tree resources by communal people but bans any transportation and marketing of these resources outside the districts of their origin. Apart from the legal instruments mentioned above, there is also a list of the so-called "Gazzeted Plants and Animal Species" that bans collection and utilization of certain plants and animals that are thought to be endangered.

The legal framework has been criticized for being inconsistent. For example, the Natural Resources Act bans cultivation or cutting of trees within 30 meters of riverine areas while the Forestry Act puts this distance at 70 metres (Moyo *et al.*, 1991). The Communal Areas Forest Produce Act has been criticized for only protecting tree species with a high commercial value. The list of gazetted plants and animal species has also been critiqued for being elitist and aesthetically oriented.

State rules are policed by agencies such as the Department of Agricultural, Technical and Extension Services (Agritex), Natural Resources Board (NRB) and Forestry Commission. Apart from Agritex, no other government agencies have structures at ward level. For example, NRB and Forestry Extension operate at the district level. The idea is that ward councilors, who are quasi-political and development oriented should act as the representative of the state at the ward level. At the village level, structures such as Village Development committees are largely expected to be the guardians of the state rules.

State structures and rules are not effective in managing harvesting of natural resources, especially trees. In the case of *Warburgia salutaris* the system has failed to protect the species for a number of reasons. Agriculture policy in the 1930s encouraged cutting down all trees in Chief Mapungwana's area to create coffee plantations and eradicate tsetse fly habitat. In the case of the latter, the aim was to clear the fly to facilitate commercial dairy projects in the area. Poor relations between state agencies and local stakeholders have also resulted in the failure of state policies to protect the tree species. For example, peasant farmers and healers are not keen to inform the state agencies about the whereabouts of the few trees remaining. The people believe their access to the trees will be stopped as soon as the state knows the location of the trees.

Both local and national level politics has hindered effective execution of state policies concerning management of tree species harvested for their bark. Cases were reported of elected councillors and members of parliament encouraging local people to continue harvesting resources in return for votes. For example, in Chipinge forestry officers failed to stop stripping of *Adansonia digitata* bark. Politicians argued that the people in the area would starve if they were not allowed to engage in bark stripping.

More recently, there have been arguments by state extension agencies and researchers that state is too thinly spread to monitor natural resource use and policy implementation. From 1991, the government embarked on the Economic Structural Adjustment Programme (ESAP). In the Hot Springs area, the state does not have a single natural resources officer to monitor and implement state policies regarding harvesting of baobab bark. The same was the case for Binga District, which does not

even have a forestry officer residing in the area. The only presence recorded was that of the National Parks agency but their role is largely limited to protecting wildlife and tracking poachers. Because of reduced budgets under ESAP, the state has been closing most of the district level offices. Even if the office is still there, there are few resources for officers to get into the field. Finally, as with all the other high value resources in rural areas, there have not been any mechanisms to combine utilization and sustainable management. Smallholder farmers are still marginalized in terms of state policies, resource use, planning, implementation and monitoring.

Efficiency of traditional rules

Traditional rules could play a significant role regarding management of tree species harvested for bark. Changing socio-economic conditions militate against their success with regards to the three species harvested for bark. Beliefs in sacredness by locals seem to be common for all three species. For example, in the Hot Springs area, Chinyamatede and Chaseyama Hills used to be sacred and all trees, including baobabs, were not supposed to be cut. However, our study found out that at present the two hills have become important sources of fuelwood and timber for the locals. Current harvesting of trees from the two hills is largely associated with deforestation in other areas that were sources of firewood and timber.

Sacredness is much stronger with regards to *Warburgia salutaris*. Smallholder farmers consider the tree to be very sacred and associate it with several taboos and rituals. For example, people who harvest the tree are supposed to be the mentally disturbed. If a normal person harvests the tree, they are supposed to place coins under the tree. Local leaders mentioned that they must be informed of harvesting so that they can supplicate to the ancestral spirits. However, many informants mentioned that they have no obligation to do so since *Warburgia* is just like any other medicinal plant.

Traditional rules regarding baobabs use to protect trees located within burial sites and places known as *marombo amadzishe*. Before colonialism, traditional leaders and members of their courts were buried under big baobab trees. Expressed rules state that such trees were not supposed to be cut or stripped of their bark. Those who broke the rules were reported to have been punished with fines imposed by traditional leaders. However, our study recorded a number of baobabs located on burial sites that were stripped. Some bark harvesters were observed using ladders which straddled graves. In view of the changing attitudes towards sacredness regarding baobab trees, our study found that the most protected trees seemed to be those located in homesteads, particularly those of powerful leaders and individuals. Social capital therefore has a bearing on the protection of valued species. People have to ask for permission before stripping such trees of their bark. Baobabs in between homesteads are often harvested after negotiations between and among neighbours.

The other rule that seemed to be operational was the prevention of villagers from outside a specified village from collecting bark from the village area. This seemed to be the case for baobab and *Berchemia*. In the case of *W. salutaris*, there was no report of outsiders coming to harvest the bark as there were very few trees remaining. The main source of the bark seems to be external: Mozambique and South Africa.

Kinship ties help members of other villages to circumvent the rules – they ask their relatives and friends to harvest he bark for them.

Local conflicts and social heterogeneity often result in the weakening of traditional rules. In Kariangwe, conflicts were reported to exist between different tribes. For example, the indigenous Tonga people were often in conflict with the immigrant Shona and Ndebele communities living among them. These immigrant tribes try to disregard the Tonga traditional authorities and rules, as they consider the Tonga to be culturally and educationally backward. Hence, it becomes difficult for the Tonga authorities to control harvesting of the bark even though they may institute rules. In the case of baobab bark, traditional authority and rules are challenged by an increasing sense among locals that the system is archaic. The challenges are especially common among immigrant groups. Immigrants in the Hot Springs area largely come from neighbouring Mozambique and from large-scale commercial farms.

Immigrants do not have the natural allegiance to the existing traditional authority since they have their origins and ancestral roots elsewhere. They have largely moved into the areas for economic reasons and therefore are not interested in following any rules that may jeopardize their economic performance. Given the economic hardships currently prevailing in the country, people find themselves without meaningful and alternative sources of income. There are widespread retrenchments, no jobs for school-leavers and rising costs of agricultural inputs. In addition, recurrent droughts have hit the country. Hence, many people have turned to harvesting and marketing bark products. A combination of these influences have greatly weakened the position of the traditional authority, who themselves openly say that it is immoral to let people starve for the sake of saving natural resources.

Conclusions

The study clearly shows that the rules limiting resource use are clearly ineffective. Some of the reasons for the failure of the rules include hard economic conditions prevailing in the country, loss of alternative sources of income, recurrent droughts and loss of legitimacy of traditional leaders. In the case of *Warburgia salutaris*, high economic, social and medicinal values, as well as natural scarcity of the tree species have made is impossible for local and state authorities to control its harvesting. These factors have led to the tree species being almost extinct from the study area.

It is apparent that controlled harvesting of high value tree resources is very difficult to implement. Another way of taking the pressure off the wild resources would be to introduce substitutes. For example, synthetic dyes could be introduced for the *Berchemia discolor* bark. In the case of *Adansonia digitata* bark, plastic and sisal fibre could be introduced as alternatives. Irrigation development in these semi-arid regions has been found to reduce dependence on baobab bark, as people get an alternative source of income. A substitute for *Warburgia salutaris* bark is more difficult to find since people believe that the tree has some very important medicinal values. However, in this case on-farm planting of the tree seems a viable alternative. The recent tree-planting project has proved to be popular with healers and individual smallholder farmers in Chipinge and Tanganda areas. In terms of institutions, a more participatory approach to rule making and enforcement would be worth investigating.

Both state and traditional institutions need to pool their resources in order to develop an effective resource management system. The current conflict between the two institutions only fosters lack of management.

An improved economic environment will help reduce dependence on bark and other woodland resources. Without an improved economic and industrial situation, it will be difficult for rural peasants and other smallholder farmers to manage and harvest their natural resources sustainably.

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References

Allegretti, M.H. 1990. Extractive reserves: an alternative for reconciling development and environmental conservation in Amazonia. *In:* Anderson, A.B. (ed.) 1990. Alternatives to deforestation: steps toward sustainable use of Amazonia rain forest. Columbia University Press. New York. USA.

Arnold, J.E.M and Dewees, P.A. 1995. Tree management in farmer strategies: response to agricultural intensification. Oxford University Press. Oxford Forestry Institute. Oxford. United Kingdom.

Arnold, J.E.M. and Perez, M. (eds.) 1996. Current issues in non-timber forest products research. Proceedings of the workshop "Research on NTFP." Hot Springs, Zimbabwe. 28 August – 2 September 1995.

Arnold, J.E.M and Stewart, W.C. 1991. Common property resource management in India. Tropical Forestry Paper No. 24. Oxford Forestry Institute. Oxford.

Boot, R.G.A and Gullison, R.E. 1995. Approaches to developing sustainable extraction systems for tropical forest products. *Ecological Application* 5: 896-903.

Braedt, O. and Gunda, W. S. 2000. Woodcraft markets in Zimbabwe. *International Tree Crops Journal*, 10:367-384.

Brigham, T., Chihongo A. and Chidumayo, E. 1996. Trade in woodland products from the miombo region. *In:* The miombo in transition: woodlands and welfare in Africa, (ed.) B.M. Campbell, pp. 137-174. Bogor, Indonesia: Center for International Forestry Research.

Campbell, B.M, Frost, P.G and Byron, N. 1996. Miombo woodlands and their use: an overview and key issues. *In:* Campbell, B.M. (ed.) 1996. The miombo in transition: woodlands and welfare in Africa. Centre for International Forest Research. Bogor. Indonesia.

Campbell, B.M. (ed.) 1996. The miombo in transition: woodlands and welfare in Africa. Centre for International Forest Research. Bogor. Indonesia.

Campbell, B.M., Clarke, J., Luckert, M., Matose, F., Musvoto, C. and Scoones, I. 1995. Local-level economic valuation of savanna woodland resources: village cases from Zimbabwe. Hidden Harvest Project Research Series 3. IIED. London.

Cunningham, A.B. 1993. African medicinal plants: setting priorities. People and Plants Working Paper 1. UNESCO. Paris.

Eckholm, E. 1975. The other energy crisis: firewood. Worldwatch Paper No. 1. Worldwatch Institute. Washington. D.C.

Eckholm, E. 1979. Planting for the future: forestry for human needs. Worldwatch Paper No. 26. Worldwatch Institute. Washington. D.C.

Eckholm, E.P. 1975. The deterioration of mountain environments. *Science* 189: 746-770.

Eckholm, E.P. 1976. Losing ground. W.W. Norton. New York.

FAO. 1978. Forestry for local community development. Forestry Paper No. 7. FAO. Rome.

Godoy, R and Bawa, K.S. 1993. The economic value and sustainable harvest of plants and animals from the tropical forest: assumption, hypothesizes and methods. *Economic Botany* 47: 215-219.

Messerschmidt, D.A. 1993. Common forest resource management: annotated bibliography of Asia and Latin America. FAO. Rome.

Moyo, S, Robinson, P., Katerere, Y., Stevenson, S. and Gumbo, D. 1991. *Zimbabwe's environmental dilemma: balancing resource inequalities*. Harare: Natprint.

Mukamuri, B. 1989 Rural conservation strategies in south central Zimbabwe: an attempt to describe Karanga thought patterns, perceptions and environmental control. *In:* R. Grove (ed.) *Conservation and Rural People in Zimbabwe*, pp. 139-149. Cambridge: Cambridge African Monographs and Baobab Press.

Mukamuri, B.B. 1995 'Making sense of social forestry', *Acta Universatis Tamperensis. Ser. A* 438. Tampere: University of Tampere.

Sithole, B. and Bradley, P. 1995 'Institutional conflicts over the management of natural resources in Zimbabwe', *SEI Working Paper*. Stockholm: Stockholm Environment Institute.