

Institutions in Natural Resource Management: Ecological and Socio-economic Implications for the Management of Valuable Tree Species in Agroforestry Parklands

(A case study of Shea and Locust Bean trees in Northern Ghana)

Mahesh Poudyal

PhD Candidate

Centre for Ecology Law and Policy (CELP)
Environment Department
University of York, UK

Supervised by:

Jon Lovett (Environment)

Neil Carter (Politics)

Summary

Shea (*Vitellaria paradoxa*) and locust bean (*Parkia biglobosa*) are two of the most important multi-purpose tree species in the semi-arid parklands in the Sahel. Shea provides not only edible fruits, and nuts to make butter (used in cooking locally, in cosmetics, and in chocolate making), but also fodder for livestock and manure to the crops from its dead leaves. Whereas locust bean is widely used to make condiment that is used in traditional cooking throughout West Africa. As a cash crop, shea comes only second to locust bean in rural parklands in most of the West African countries in the Sahel. Moreover, shea and locust bean trees hold great traditional cultural significance as their products are widely used in ceremonies from birth to death. There is a growing concern in recent years about the decrease in the population of these trees throughout Sahel. Northern Ghana, a region which is among the poorest in Ghana, is the main shea-producing region in the country. Furthermore, shea and locust bean are the major sources of cash income to the rural households in this region. Given the importance of these tree species, both for socio-economic and traditional as well as for ecological integrity of the semi-arid parklands of the Sahel, it is important to understand the cause(s) of their decline. Moreover, we believe the management and ecology of these

trees in these parklands are directly affected by the socio-economic, cultural and institutional factors, as much as they are by the biophysical factors (often blamed on changing climate). Only by understanding the relationships between these various factors, and the management and ecology of these trees will help government and non-government agencies working for poverty alleviation, livelihood enhancement, and ecological integrity of these parklands to formulate and implement policies that could help achieve their objectives. This research project aims to (i) help increase the understanding of the causes of decline of shea and locust bean trees in the Sahel, more specifically in Northern Ghana; (ii) help understand the relationship between socio-economic, cultural and institutional arrangements and the management and ecology of these trees; and (iii) help in the formulation of policies that are more favourable to the sustainable management of the agroforestry parklands and subsequently to the poverty alleviation in the region.

Research Objectives

The overarching aim of this research project is to help in livelihoods-enhancing policy formulation through a better understanding of the impacts of socio-economic and institutional arrangements on the ecology of the multipurpose tree species in agroforestry parklands in sub-Saharan Africa, taking the case of shea and locust bean trees in Northern Ghana for the study. By building an understanding of these impacts, this study will consider their subsequent implications on rural poverty and livelihoods. Understanding of the roles of socio-economic and institutional processes in altering the ecological conditions of the agroforestry parklands will be crucial in devising policies that provide suitable incentives to the stakeholders for sustainable management of these parklands, which can ensure that the livelihoods of the people dependent on these resources are enhanced and their poverty reduced. In order to achieve this overall aim, this research will have the following specific objectives and questions.

1. Determine the importance of shea and locust bean trees for rural households and distribution of benefits from them

Through the survey of a cross-section of households and communities, the full extent of ecological, socio-economic and cultural significance of shea and locust bean trees will be

explored based on the benefits (or perceived benefits) that households derive from this species. How this significance translates to livelihood impacts will be assessed. Furthermore we will investigate how the prevailing institutional arrangements, norms, culture and power structures affect the distribution of benefits among individuals and households.

2. Investigate human impacts on the management and ecology of shea and locust bean trees

Using econometric models, we will estimate how socio-economic and institutional factors affect the ecology of shea and locust bean trees given the biophysical factors of the semi-arid parklands. We will particularly investigate how land and tree tenure regimes affect the management practices of these trees and subsequently their ecology. These models should highlight the role of economic and other kinds of incentives in affecting the management and ecology of these trees in the parklands. We expect to find more trees in a field or fallow where rights are clearly defined both in terms of tree ownerships and products appropriation. Subsequently, we expect to find higher benefits to the households with clearly defined rights with regards to ownership of these trees and their products appropriation than those without such rights.

3. Explore gender dynamics in the management of these trees and its implications

The management of shea and locust bean trees and appropriated benefits from these species are very gender specific. Although the men decide on whether to keep shea trees in their farms, it is the women of the family who have the usufruct rights to access the tree crops depending on the labour inputs onto a particular area of land; for example, the wife (wives) will have priority rights to pick shea fruits/nuts on farmed lands, whereas on fallows, it could be more like open access. On the other hand, locust bean trees usually belong to the chiefs (or the landowners) - who are almost exclusively men - and the harvest goes to the chiefs and/or landowners first, and only then others can get part of the harvest upon the discretion of the chiefs/landowners. Thus, there are two distinct features related to gender in the management of these trees in agroforestry parklands. First concerns the decision by males of the households or the "male" chiefs and landowners to keep shea and locust bean trees on their lands and what factors affect their decision. Second, how the access to these trees and their products by women is regulated. We expect to find the influence of tenure systems, local in-

stitutional arrangements, customs, and tradition in regulating the access to these trees by various stakeholders. The role of women in shea tree management seems to be little explored, with much attention given to their role in fruits and nuts harvesting and butter production and processing. We aim to investigate the role of women, if any, in shea tree management in the parklands. Furthermore, local informal organisations, such as *Nyoor Yinii*, are found to be associated not only with labour sharing but also with forming cooperative of sorts to produce shea butter (Chalfin 2004, pp 61-85). Understanding of such arrangements will provide insights into the social and institutional spheres that females have created for themselves and from where they exercise their influence.

4. Assess the potential of shea and locust bean trees for poverty reduction

Following from the preceding three research objectives, we will conduct a thorough analysis of socio-economic and environmental contribution of shea and locust bean to the households and communities in the study region. This will allow us to assess the poverty reduction potential of these trees, especially through the cash incomes they generate and ecological services they provide to the households. The role of any external support mechanisms that can enhance this poverty reduction potential of these trees will be explored, which will particularly be helpful in policy formulation towards those ends.

Case Study: Shea and Locust Bean Trees in Northern Ghana

Shea and locust bean trees are multipurpose (and economically valuable) tree species growing extensively in the agroforestry parklands of semi-arid Africa. People living in the semi-arid zone of SSA have traditionally used shea butter as the major source of cooking fat, as well as for purposes ranging from medicinal to traditional ceremonial use (Lovett and Haq 2000; Chalfin 2004). Moreover, shea also provides a major source of cash income to many of the rural households through the sale of its fruits, nuts, and locally processed butter. Similarly, locust bean is extensively used in these parts to prepare a local condiment used in traditional cooking (soups, stews etc.). In the semi-arid parklands of many West African countries, shea either provides the largest or second largest cash income to the rural households (Teklehaimanot 2004). In recent years, the demand for shea butter (as cocoa butter replace-

ment and in cosmetic industry) on international markets has made shea an international commodity, and the demand is growing each year (Chalfin 2004). So, there is an increasingly greater potential for the rural households to earn cash income from shea products.

Peoples living in, and cultivating the semi-arid parklands of SSA are found to alter the population dynamics (and ecology) of the shea tree through conscious and unconscious selection (Lovett and Haq 2000; Maranz and Wiesman 2003). Although shea is one of the few species that are generally “selected to keep” in the parklands, recent studies have shown that the population of this multi-purpose and economically valuable tree species is declining (Teklehaimanot 2004). On the other hand, locust bean are left in the parklands because they usually come under the domain of chiefs (in many cases there are specific "tree chiefs" for locust bean trees) and/or the landowners, and the land-users (i.e., farmers) do not have the tenurial rights over these trees. Thus, the selection of a particular tree species to keep in the farmed parklands, as well as the decision to remove others could be driven not just by economic concern but also by institutional and other socio-political factors, given the complex tenure and other customary regulations regarding these valuable trees in the parklands in SSA. Furthermore, management and products appropriation from trees like shea and locust bean show very specific gender dimensions – for example, male members in the family make decisions on whether to keep shea tree on their parklands or not; however, female members of the households usually have usufruct rights to appropriate products from those shea trees. Like most of the rural African societies, women harvest the fruits and nuts from the shea trees, and keep the benefits from the sale of those fruits and nuts or the butter they produce. These issues make shea tree an important as well as a suitable case to study the impacts of socio-economic and institutional factors on its management and ecology.

Northern Ghana has persistently shown very low economic growth compared to the country’s southern region and it has also, economically, been the poorest region in the country over the years (Canagarajah and Portner 2003; Chalfin 2004; Whitehead 2006). In contrast to other regions in Ghana, the poverty in the three Northern regions of the country stayed the same or even increased during the 1990s (Canagarajah and Portner 2003). Being in the semi-arid region, the climatic and ecological variability is high, and the households/communities who primarily rely on rain-fed agriculture for their livelihoods are often the most vulnerable. For these vulnerable households and communities, diversification in the sources

of income could be crucial if they are to avoid falling into poverty traps. At a regional level, diversification of exports and private sector growths are seen as essential for economic growth and poverty reduction (Canagarajah and Portner 2003). Multipurpose and economically valuable trees like shea and locust bean have the potential to provide opportunities for income diversification at the local level as well as export diversification at the regional and national level. The potential of shea as a major source of income for Northern Ghana has been recognised since the colonial period (Chalfin 2004, pp 89-131); however, these potentials have not been realised at the scale perceived during the colonial and post-independence period in this region. Realisation of these potentials could be constrained not only by the climatic/biophysical conditions but also by the local socio-economic conditions and the institutional arrangements, as well as the regional and national laws and regulations. In this respect, Northern Ghana provides a suitable region to study the role of socio-economic and institutional factors in altering the management and ecology of the multipurpose trees like shea, subsequently influencing the livelihoods of the rural households who rely on these trees as a major source of cash income.

Selected References

- Canagarajah, S., and C. C. Portner. 2003. Evolution of Poverty and Welfare in Ghana in the 1990s: Achievements and Challenges. Africa Region Working Paper Series No. 61
- Chalfin, Brenda. 2004. *Shea Butter Republic: State Power, Global Markets, and the Making of an Indigenous Commodity*. New York: Routledge.
- Lovett, P. N., and N. Haq. 2000. Evidence for Anthropogenic Selection of the Sheanut Tree (*Vitellaria Paradoxa*). *Agroforestry Systems* 48 273-88.
- Maranz, S., and Z. Wiesman. 2003. Evidence for Indigenous Selection and Distribution of the Shea Tree, *Vitellaria Paradoxa*, and Its Potential Significance to Prevailing Parkland Savanna Tree Patterns in Sub-Saharan Africa North of the Equator. *Journal of Biogeography* 30 (10): 1505-16.
- Teklehaimanot, Z. 2004. Exploiting the Potential of Indigenous Agroforestry Trees: *Parkia Biglobosa* and *Vitellaria Paradoxa* in Sub-Saharan Africa. *Agroforestry Systems* 61 (1): 207-20.
- Whitehead, A. 2006. Persistent Poverty in North East Ghana. *Journal of Development Studies* 42 (2): 278-300.