



Gender and trees in Péni, South-Western Burkina Faso. Women's needs, strategies and challenges

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Abstract

This article describes and explains the different interests and strategies that men and women have in tree management in Péni, south-western Burkina Faso. It argues that men and women have different household responsibilities. While the responsibility of the men is to procure staple food, housing, clothes, medicines and administration fees, women are responsible for finding the ingredients of the sauce accompanying meals and to take care of the children and the daily domestic tasks. As a result, the women's interest in trees focuses on their use-value for the household, while men have a stronger interest in their commercial value. Consequently, women tend to rely heavily on the existence of communally owned resources that can be gathered by everyone, while men prefer "privatised" resources. The social marginalisation of women makes it more difficult for them to manage tree resources according to their own needs. Women are not completely powerless, as they have developed successful strategies to bypass some of the existing social and tenure constraints and defend their interests. However, new regional and global trends have put women's resources and strategies under pressure.

Women often receive special attention in research dealing with natural resource management, for several reasons. First, they usually use environmental resources for subsistence purposes, and are strongly reliant on these resources. Second, they are often the first to suffer from a decline of these resources, which they rely so heavily on, and their social marginalisation limits their room to manoeuvre in managing the environment (see Joekes et al., 1994: 137; Leach, 1994: 25; Barrett & Browne, 1995). Two conclusions are often made from these statements. One, that women, by being increasingly marginalised, are forced to over-exploit their resources unsustainably and thereby cause deterioration of these resources, or two, that women lack the incentive to invest in appropriate environmental management (see Leach, 1994: 28; Barrett & Browne, 1995: 35). Others (such as the "women and environment" approach) argue that women are the best managers of the environment, since they are the first to bear

Key words

Environmental conflict, environmental management, land tenure, women's agency, non timber forest products

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the consequence of environmental degradation (see Leach, 1994: 25; Barrett & Browne, 1995: 32).

This article describes the environmental interests and concerns that women have regarding trees in southwestern Burkina Faso. The image of women presented in this paper is neither that of powerless victims, nor that of eco-friendly managers, but of something in between. We will first describe the interest that women have in tree management and show how it differs from men's interest. We will then assess the limited room that women have to manoeuvre in the management of their environment, and the strategies that they develop to bypass some of the existing social and tenure constraints. Finally, we will analyse the impact that regional, national and global processes have on the environment, an environment upon which the women rely.

Methods

The data on which this paper is based were collected as part of the PETREA research project (see Nathan, 2002; Gausset et al., 2003a) in Péni, Houet Province (Burkina Faso). The research was spread over three periods of fieldwork lasting in total 5 months (March-April 2002, May 2003, February-March 2004). The fieldwork was conducted by different interdisciplinary teams of researchers. A wide range of methods were used but this article is based mainly on data collected using social scientific methods; questionnaires, semi-structured interviews, open-ended interviews, participant observation, and Participatory Rural Appraisal (PRA), with both men and women living in rural communities.

The questionnaire survey covered 104 households, i.e. about 20% of all the households living in Peni, including the Kogoue, Wondjan and Saki sub-villages. On the basis of the census of 1998, we selected every fifth household and then interviewed the head of each chosen household. The households that had moved away were replaced by a neighbouring household related to the original one. Some of the households, as were defined in the census, worked together in the fields. We combined them in the analysis, resulting in a total of 89 households which we defined as agricultural units. In the analysis, we distinguished the Tiefo (the autochthonous population) from the regional migrants (the Diula, Daffin, Tienkan, Senufo, Toussian, Bobo, etc.), the Peul or Fulbe (only 2 households in our sampling) and the non-regional migrants (mainly Mossi).

By using a questionnaire it was then possible to sample data about the composition of the households, the migration of household members; the species and number of trees owned by the household, the variety and quantity of crops planted, the number of animals owned, and the income derived from these products or activities. Participatory Rural Appraisal (PRA) matrix ranking exercises were organised with a group of women, a group of men, a group of young men, and a group of migrants, who were asked to rank trees according to their importance relating to their different uses. About 50 semi- or unstructured interviews were also conducted with a sample of men and women, local authorities, members of local cooperatives or associations, etc.

A botanical inventory was made using a stratified sampling method, first registering the different types of vegetation within the different areas (fallow land, plantation, parkland, sacred hill, etc.) and then making a number of randomly chosen plots within each category. A to-

tal of 31 plots were selected, varying between 5 and 40 m in size. The aim was to have approximately 10 trees on each plot. Within each plot, all the trees were registered. For each tree we noted the species, height, diameter and signs of browsing and cutting. The number of short (<1.3 m), young regenerating trees were counted without measuring height or diameter. In this way it was possible to calculate the number of different species and their distribution with respect to size, as well as, estimate how much they had been cut and browsed.

Additional surveys were also conducted such as soil sampling, quantitative and qualitative ethnobotanical surveys, GPS surveys, as well as a participatory assessment of the soil quality. For more details about these surveys, see Gausset et al., (2003a).

Study area and local context

Péni is a small town, which consists of 4234 inhabitants (census of 1996). The town is situated 35 km from Bobo-Dioulasso on the main road going to Banfora, in the Houet province, southwestern Burkina Faso. This region is part of the south-sudanian bioclimatic zone, with an annual rainfall exceeding 1000 mm. There are approximately five dry months with rainfall below 50 mm. The original vegetation in the zone is tree savannah or seasonal forest (Fontès et al., 1995). At present, land use in Peni consists of: fallow land, different sorts of agro-forestry parkland with food crops, fruit and nut tree plantations, home gardens (mainly in town), a sacred hill (on which Combretaceae and Caesalpinaceae dominate) and a few gallery forests without cultivation. Slash and burn systems are used in areas under both short and long term fallow. The main crops produced for consumption are maize, sorghum and millet. The main cash crops are cotton, hibiscus flowers, mango and cashew. Groundnuts are also grown but are less important than the other crops. It is important to note that the town is situated on top of a hill, which divides the area into two, each with relatively different land-uses. On top of the hill, investment in fruit plantations is very important. Further down the hill, cotton and cattle herding are the primary sources of income. Here the fruit and nut tree plantations are less important. This article focuses on the village area on top of the hill, where animal browsing is less problematic for plantations.

In the village of Péni, the autochthonous population is a minority (almost 40% of the population), as can be seen in Figure 1. Many migrants come from neighbouring ar-

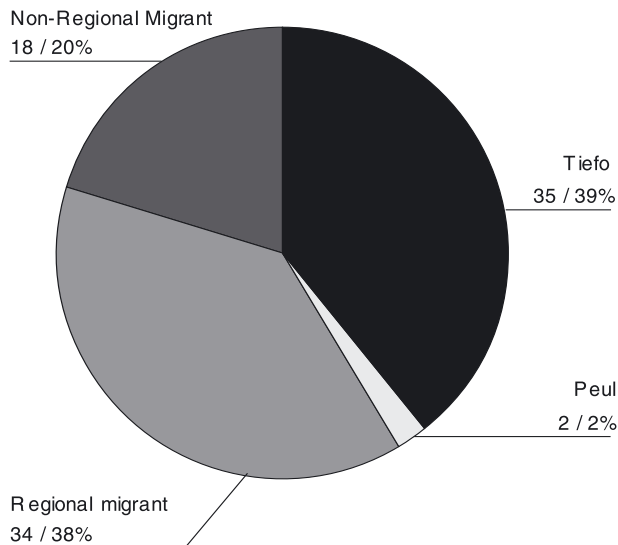


Figure 1: Proportion of households in Pèni according to their geographical or cultural origin (Tiefo = indigenous people in Pèni; Regional migrants = Diula, Daffin, Toussian, Bobo, and all people coming from the South-West of Burkina Faso; Non-Regional migrants = people coming from other parts of the country, mainly Mossi)

eas in the south-western Burkina Faso, but approximately 20% come from further away - mainly Mossi from the central plateau.

Income derived from the exploitation of trees accounts for approximately 25% of the household economy (see Figure 2). However, the income derived from trees depends heavily on the access to land, and on the possibility to plant trees. Land owners, such as the Tiefo and those migrants who have been given land, mostly regional migrants, have control over more land than borrowers and, therefore, have access to more tree products, as can be seen in Figure 3. This will be discussed in the following sections (see also Gausset et al., 2003a).

Women's use of trees

Trees have a great variety of uses (Chweya & Eyzaguirre, 1999; Mertz & Reenberg, 1999; Mertz et al., 2001; Lykke et al., 2002; Gausset et al., 2003a). The ethnobotanical survey and semi-structured interviews showed that branches or trunks are used for firewood, charcoal and construction material. Bark, flowers, roots and leaves are used for medicinal purposes. Wild fruits and leaves are used in salads and in the sauce accompanying meals, and the fruits of many trees were sold on local markets.

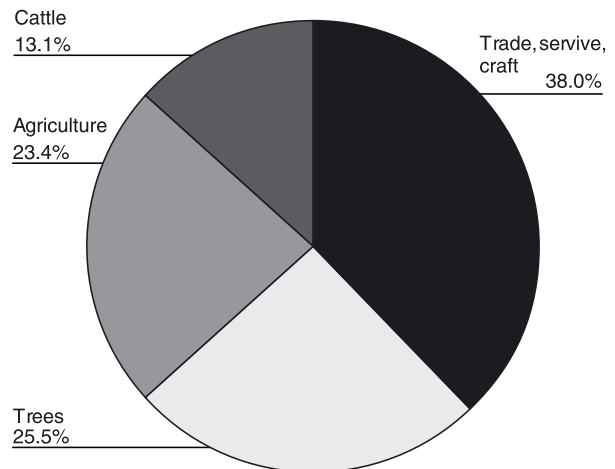


Figure 2: Average source of income of households. "Trees" refers mainly to the sale of fruits (cashew, mango, shea nuts, African locust beans seeds) as well as cashew butter and soubmala. It does not include the products consumed by the household.

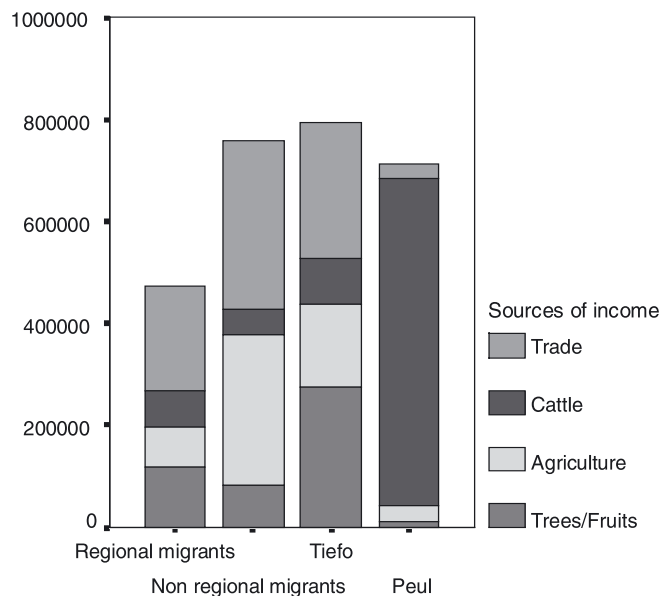


Figure 3: Average annual income, in FCFA, of households according to the geographical and cultural origin of the informants.

Women, because of their responsibility for the family, have a keen interest in specific tree products. They are primarily concerned with the everyday health and hygiene of their family, and especially that of their children. Therefore, they have a strong interest in the medicinal potential of plants and trees. The women are also in charge of preparing meals and are, therefore, also the ones responsi-

ble to fetch firewood. While men are considered mainly responsible for providing the staple food (maize, sorghum, and millet), women are responsible for providing the sauce. Men can buy meat or fish for the sauce, but all other ingredients, such as vegetables, spices and cooking oil, are supposed to be provided by the women (see also Helmfrid, 1998: 9-10; Thorsen & Reenberg, 2000: 50). Vegetables and leaves for the sauce are either cultivated in the fields or in gardens, but are more often collected in fallow areas, uncultivated areas, or protected forests. Different vegetables, leaves, flowers and fruits are collected all year, and constitute a significant supplement to the cultivated products.

The local cooking oil in Burkina Faso comes first and foremost from the production of shea butter, derived from the nuts of the *Vitellaria paradoxa* C. F. Gaertn. (English: shea nut tree, French: karité). This tree is grown on both agricultural and fallow land. Cereals, such as sorghum, millet or maize, are inter-cropped with this tree. The nuts are harvested in June and shea butter is produced after a long transformation process. The nuts are first dried, then fried/smoked, crushed in a mortar, fried/smoked again, and then crushed in a mill. The brown paste is beaten until it becomes white, and then boiled once to produce high quality butter sold on markets. The paste is then boiled once again and produces a very small quantity of second grade butter consumed at home. Women are responsible for all of these activities (Khouw & Golane, 1987; Helmfrid, 1998; Fold & Reenberg, 1999). Shea butter is also an ingredient in the production of local soap. Unprocessed nuts are also sold directly on the market to later be industrially processed. They are used, among other things, as substitutes for cocoa butter, or in the cosmetic industry.

In south-western Burkina Faso, one of the main condiments used in the seasoning of food is called "soubbala" and derives from the fruits of the *Parkia biglobosa* (Jacq.) Benth. (English: African locust bean, French: néré). These trees are mainly grown on fallow and agricultural lands and are inter-cropped with cereals. The fruits are harvested from March to May. The seeds are removed from the shell and separated from a yellowish, sweet flour which surrounds them (this flour can be given to cattle, eaten directly or cooked as biscuits). The seeds are first crushed in a mortar, then boiled for 24 hours, crushed a second time in a mortar, rinsed and filtered three times, boiled again for a short time, mixed with ashes and left to dry/ferment for one or two days, then sold in small balls and used in preparing sauces. Women are fully responsi-

ble for this process resulting in soubbala, but their men help during the harvest (Ki, 1994; Ouédraogo, 1995; Helmfrid, 1998; Gausset et al., 2003a).

As described, the workload of the shea butter and soubbala production is borne almost entirely by the women, who also have the specialised local knowledge necessary to process these seeds and nuts. The importance of the locust bean and shea trees for the women in the survey was confirmed in the PRA exercises, as the women ranked these species much higher than men did.

Differences between women's and men's use of trees

Commercial value is often distinguished from, and opposed to, subsistence value (see examples in Gregersen et al., 1995: 18; Davies & Richards, 1999: 18-20). However, women are more engaged in subsistence activities than men, and therefore the consumptive value may better account for the gender differences linked to tree products, because tree products used for subsistence can also be sold by women on the market for cash. In this article, the term "consumptive value" refers to the consumption of tree products within the household. The consumptive value of tree products is especially important when cash income is a major limitation, and when households are unlikely to purchase replacement forest products. It is distinguished from the "cash value" derived from selling the products on the market. Of course, tree products having a consumptive value might be sold on the market and can therefore also have a market value. The difference is significant when comparing products that can be directly consumed within a household (soubbala, shea butter, soap), and compared to those which cannot be directly consumed (raw African locust beans and shea nuts) or are not consumed locally (cashew, charcoal). The mango production has an ambiguous value, as it is difficult to define whether its value is primarily a question of consumption or cash. However, the two aspects still need to be distinguished, because anybody in Péni can pick a mango in any plantation, as long as the fruit is eaten on the spot and is not sold. As a result, no local farmers buy mangoes on the market, and the commercial value of the mango depends entirely on the external demand - not on its consumptive local value.

The interest of women in tree production relates directly to the trees' consumptive value for their household; medicinal plants, butter, soap, sauce, firewood, fruits, etc. The interest of their men in tree production differs from

that of the women, as the men generally regard the tree as a commercial product. For example, men are professional traditional healers and exploit the trees and shrubs on a commercial basis, while the interest of women in medicinal plants is usually linked to very concrete needs concerning their own health or that of their children. When men get involved in the collection of firewood, it is usually to produce charcoal that is sold on markets or along the roads, while the women collect firewood primarily for home consumption.

Men do have some interest in shea and locust bean, because they customarily claim the rights to trees found on their own land (see below). When the harvest is poor, the men keep the different tree produce for themselves and sell the harvest on the market. When the harvest is good, the men still keep most of the harvest, although they give part of it to their wives, but seldom enough to cover the household's consumption. Women often buy part of their husband's harvest at a preferential price. The interest of men in shea and locust beans is linked to the money they can make when selling the nuts and fruits on the market, while the interest of women in the same products is linked to their consumptive value within the household.

It should be noted, however, that making and selling shea butter and soumbala balls at the markets are two of the few activities (along with petty trade or brewing beer) widely practised by women, allowing them to earn money. However, women seldom sell the raw nuts or seeds; they usually sell the processed product, which has a local consumption use value. In southwestern Burkina Faso, almost all rural women are involved in producing and selling soumbala and/or shea butter to help generate income. The processed product sold by the women derives mainly from raw nuts and seeds bought on the market. According to our informants, the income derived from processing shea butter and soumbala is between one third and half of the price paid to purchase the raw product. The amount of labour that one woman can invest in the processing limits the quantity of shea butter or soumbala produced, and limits the gain per person to between FCFA 1000 and 1500 (between EUR 1.5 and 2.3) per operation. The frequency of processing these products depends on the frequency of market days, which is every five days, in Peni. Women can then use this income to pay for the running of their household i.e. buying cooking ingredients, or helping their husband to cover households' expenses. Women are sometimes forced to sell soumbala or shea butter, even though they don't have enough for their own needs, and then have to buy these products later on during the year, at

a higher market price. This is due to their limited credit opportunities, and to the fact that the harvest of shea nuts and locust beans happens during the "hungry period" before the grain harvest, which is a time with high cash needs.

As we can see in all the examples above, women's interest in trees is most often because of the consumptive value of tree products such as medicine, food, and firewood. When they do sell tree products, it is usually after having processed butter, soap or soumbala, which have a local use value. Moreover, soumbala is a typical gift given to visitors (in-laws or relatives from town) or as wedding, baptism and funeral gifts (occasions which require a large quantity of food to feed the visitors). This social aspect also stresses the non-monetary value of these products.

While the market value of the tree products sold by women depends on their local consumptive value, the tree products sold by the men are independent of any direct local consumptive value. Men usually sell products that can not be consumed directly, such as raw cashew nuts, raw shea nuts and raw African locust beans, or that are not bought to be consumed locally and are exported to town, such as charcoal, cashew or mango. Moreover, when men plant trees, they usually select cash crops such as mangoes, cashew, guavas, or oranges. The women who sell these fruits on local markets usually do so for their husband, or buy them from their husband and sell them with some profit (they are not selling their own produce but are rather trading the produce of others).

The different interests of men and women in tree products can be explained by their different roles within the household. A man is responsible for providing the staple food, as well as the products that need to be bought such as clothes, medicine, transport and school fees for the children. However, the income earned by the men is often not enough to cover the households' expenses. This was evident from our questionnaire survey, which showed that almost all women earned some money by selling shea butter, soumbala, beer, cooked food or petty trade. Wives had to work together with their husband in the household's fields, even though they also had to cultivate extra fields to produce vegetables, or to earn an income from selling extra produce. This extra income is used first to buy all the things needed in the preparation of the daily meals and then to complement her husband's expenses when he fails to live up to his responsibilities. This explains why women are more interested in the consumptive value of tree produce and in cost-saving activities - i.e. producing what they would otherwise have to buy or collect, such as

shea butter, soubala, wild fruits and vegetables, medicinal plants, firewood, soap, etc. (see also Helmfrid, 1998: 11). It also explains why women are more interested in free access to the locust bean or shea trees and non-timber forest products found in the bush and fallow areas. Men, on the other hand, are more interested in managing privatised resources and in commercialising raw goods that have no local consumption value.

Women's marginalisation and agency

Although women and men complement each other within the household, their specific family duties lead them to have different and, at times, competing interests regarding tree management. Women are generally not equal to men when it comes to the management of resources. Semi-structured interviews revealed that in these patrilineal and patrilocal societies, women only have access to their husband's land and it is the husband who determines the household economic strategy. Women can farm their own produce, but they do this only after they have finished helping their husband in the household's fields. This extra task is carried out on land that is borrowed from, and cleared by the husband, who still owns the shea and locust bean trees growing on the land. Since women do not own land, they cannot plant trees and claim tree ownership.

Although the national law requires that any untitled land belongs to the State, it is common practice that land tenure is still managed according to customary law. All the land in Péni has already been farmed and is, therefore, the object of customary claims. Someone who wishes to use a piece of land cannot do so without asking the permission of the head of the family who has claims to the land. In the following discussion, when analysing land ownership, private land, or privatisation, we only refer to the customary ownership and to the way in which customary owners increase their control over land.

Usually, the produce from the trees grown on farm is owned either by the customary owner, or by the farmer who might lease the land. The produce from wild trees found on fallow land, however, can be harvested by anyone as long as it is for subsistence use and not for commercial purposes. The situation of the shea and locust bean trees is ambiguous, since they are not usually planted but can be found both on fallow and on agricultural land. This is because they are left standing when the bush or fallow land is cleared. The women claim that

everyone may harvest these trees, although men claim that only the owners of the field can have access to them. As a result, each group tends to disregard the others claim. Women tend to harvest shea and locust bean everywhere while men try to chase them away and complain that there is a large amount of shea nuts and locust beans stolen from their private land. As a result women are sometimes reported to steal from their own husbands. This theft is never punished even though, each year, men threaten the women who steal the locust beans with prosecution, and use charms that may mystically punish the thieves (Ki, 1994: 44; Gausset et al., 2003a). This though, does not prevent the women from harvesting locust beans, especially in the fields of their husband or those of their own family. Harvesting the shea nuts is usually based on "first-come, first served" principle, despite the men's attempt to retain the shea nut harvest. The special interest of the men in the locust bean harvest is partly linked to the fact that it can be preserved for several years without turning bad and it is, therefore, used as a kind of savings.

Even though women are marginalised and have fewer possibilities in managing their local environmental resources, it does not mean that they are powerless. They do develop strategies that support their interests whereby they successfully contest the male ownership of locust beans and shea harvest. Another strategy is that some women mix locust bean seeds with maize or millet seeds which they sow in their husbands' fields, sometimes without the knowledge of their husbands, although in many cases, men agree to this practice. In this way, the women insure that there is a variation in the trees which will benefit them in the future. Another strategy of the women is to bypass the existing tenure constraints that prevent them from planting trees and, therefore, claim ownership of their land. They create women's groups, which have less difficulty in accessing land and creating plantations. As these groups are of major interest to many NGOs and development projects, the men might also benefit from women's groups that provide the village with a good reputation with aid agencies (see also Batterbury, forthcoming). Moreover, as the common fields are shared by all the women, and owned and inherited by no one, they do not threaten the existing male-dominated system of land tenure.

The examples described in this paper relate to the ownership of trees and the trees harvest. In all of these examples, women strive to find a way to harvest the uncultivated trees, or develop communal co-operatives to counteract their men's monopoly on the private ownership of land and trees. Concerning non-timber forest products found on fal-

low, bush or forested areas, the situation is traditionally more favourable to women. The harvest of the wild trees is available to everyone, which ensures a fair access to all, also the poor. These uncultivated trees are, therefore, an important source of income and food for the women, who use them to find a crucial part of their resources. Our botanical inventory showed that there is approximately as much fallow land in Péni as there is cultivated land. It also showed that the density of productive shea and African locust bean trees is the same in both types of landscapes. Therefore, the women consider the shea and the African locust bean harvest equally important on fallow land as it is on the agricultural land. For women the main difference between the two types of landscapes is in the tenure and the geographical situation of land. This is because the agricultural land is more strictly controlled by the men and is closer to the village. However, fallow land remains very important for the women when it comes to the collection of firewood and non-timber forest products.

Even though women cannot own land, they have a strong interest in maintaining a common access to the communal resources. Although the social marginalisation of women makes it difficult for them to secure their own needs, they are not completely powerless, and they do have informal or even formal strategies to promote their interests.

New challenges and pressures on women's resources

A number of regional, national and global trends are having a negative impact on the resources used by women. A high demographic growth means that more and more land is cultivated. Migration occurs both from the southwestern part of Burkina Faso (about 40% of the population), and from other areas, such as the Central plateau (more than 20% of the population, see above in "context"). The conflict in Ivory Coast has forced thousands of migrants to return to Burkina Faso. This influx has added to the existing pressure on the land, and has exacerbated local tenure conflicts between first-comers and late-comers. As a consequence of this influx, more forested and fallow areas are being converted to fields (Drabo, 2000; Ouédraogo, 2002), and it is therefore increasingly difficult for women to access and harvest the wild produce on which they rely.

Another problem is that the migrants do not always share the same management rules as the first-comers. For example, in areas where there are rules which prevent the

harvesting of the locust bean fruits before the "Master of the Earth" ("chef de terre") officially opens the harvest (Ki, 1994: 55), migrants are accused of not respecting the communal rules and of being responsible for the breakdown of customary environmental management. This, coupled with a higher population density and open access to fallow and forested land, leads to a kind of tragedy of the commons (see Hardin, 1998). It is, for example, widely reported, both by our local informants and in the regional literature (see Helmfrid, 1998: 28; Ki, 1994: 72) that locust beans are harvested too early, when the fruits are still immature. Traditionally, there is no authority controlling the beginning of the harvest, when local women could secure themselves access to the harvest before others took it. This is compounded by the fact that the locust bean fruits are harvested at a time when the food reserves from the previous year are low. In this case, the tragedy of the commons does not lead to an environmental degradation per se (the trees are still actively tended and protected), but nevertheless leads to a degradation of the production of soumbala, since some seeds are harvested when they are still immature.

Another regional trend, in southwestern Burkina Faso, is to invest heavily in fruit tree plantations, mainly mango and cashew. While the mango plantations are well established (our questionnaire showed that only 28% of the mango trees were younger than 10 years old), cashew is a new product that is currently booming. The cashew trees already outnumber the mango trees by 35%, and 84% of the cashew trees were 10 years old or less at the time of the survey (in 2002). Although it is often agricultural land which is turned into plantations - especially when the fertility of the soils declines due to repeated cultivation - few people doubt that the thousands of hectares of plantations created during the past two or three decades also contribute to the pressure on bush and fallow land. The planting of trees as cash crop is usually complementary (instead of an alternative) to the cultivation of cereals so that people who replace their cereals with plantations tend to create new fields elsewhere. This results in a reduction of the fallow and bush areas and, therefore, of produce that women can find in these areas.

Another trend is the development of cattle and small ruminant husbandry, spread by the Fulani herders who migrated out of their traditional herding area, following the drought of the 1970's. Herding was then adopted by the local population. Cattle are usually kept in forested and bushy areas during the rainy season, away from the fields to minimise damage to the cultivated crops. During the dry

season, they still graze in the forested and fallow areas, but they are also allowed to feed on the plant residue left in the fields after the harvest. The development of cattle grazing is likely to have an impact on the regeneration and availability of vegetation, although the details of these changes remain to be investigated. The concerns of some women are, however, that the cattle grazing in the forested areas compete with the harvesting of specific species of wild fruits and vegetables and make it more difficult for women to meet their household needs (Hagberg, 2001).

The increasing integration with the world economy and the consequent increasing reliance on market economy is another trend. This, coupled with widespread poverty, leads to a greater reliance on cash and consequently to an increased commercialisation of tree and forest products, which, as we pointed out, can pose a threat to the women's subsistence and utilisation of trees, even though women are increasingly drawn into the market, as they can no longer rely solely on the produce from the uncultivated bush but also need cash. The increasing commercialisation of tree products, either as raw materials or as processed products, leads both to an increasing pressure on tree resources, as well as on the existing tenure arrangements between first-comers and late-comers, or between men and women.

These trends cumulate in a change in land tenure, resulting in more stringent private rights. The demographic growth, migration patterns and increased commercialisation of tree produce all contribute to the pressure placed on the existing tree resources, and lead to the aforementioned "tragedy of the commons", in which individuals try to maximise their own private benefit. According to many of our informants (and confirmed by the observation of wood piles seized by the forestry department, or by stumps of freshly cut living trees in fields and fallows – see also Helmfrid, 1998), women increasingly cut green branches for firewood instead of harvesting dead wood. Young men have also begun to use the tree species, which are useful for women (and protected by law), such as the locust bean and shea trees, to make charcoal. Locust bean fruits are also sometimes harvested too early. This new local competition, coupled with that from migrants puts pressure on the customary system of power and tenure rules, and inevitably has an impact on the use of, and access to resources. Women's strategies to rely on open access are counter-balanced by strategies of men who try to restrict access, usually through some form of privatisation. The widespread "theft" of shea and locust bean is counter-balanced by the use of charms to frighten and de-

ter thieves. The increasing number of migrants requesting land rights has been disregarded by the local population who have developed strategies to be able to refuse to give land away to those who need it, which is customarily shameful (Hagberg, 2001; Ouédraogo, 2002). The local population utilise as much land as possible, often developing fruit tree plantations to ascertain their ownership. This allows them either to refuse to give their land away, by claiming that everything is already used, or to speculate and receive rent in one form or another (Ouédraogo, 2002). Access to the land controlled by the first-comers is increasingly restricted. For example, tenants are usually prevented from planting any trees on the land that they borrow, so as to prevent them from developing any claim to the land. While many elderly migrants used to be allowed to develop tree plantations, this has become increasingly difficult. The lending period is now restricted to a few years, although it used to be limitless. These arrangements are being formalised and are even sometimes registered with the local administration (Benjaminson & Lund, 2002; Lavigne Delville, 2002; Mathieu — , 2002; Gausset — , 2003b).

The different trends that have been mentioned are all interrelated. For example, the development of new plantations of cashew or mango, and the consequent decline of fallow areas, is partly a strategy to restrict the access of migrants to the land, partly a response to the integration into the world market economy, partly caused by population increase (itself partly caused by migration), and partly a strategy devised to counter the decline of soil fertility (linked to an increasing population pressure and the insecure land tenure of migrants). Everything is interrelated, and leads to a greater pressure on fallow and bush land. As women are more dependent on these resources and have less control over them than their men, the capacity of the women to fulfil their household duties is slowly being eroded. The trend towards increasing land privatisation might seem, at first, to benefit the local women and to be detrimental to migrant women. However, experience shows that, when women achieve access to land because of their husbands, increased privatisation leads to a renegotiation of the customary rights that secures access to land for women, and ends up benefiting men more than women (Hilhorst, 2000).

So far, women have been the primary losers of the new trends that put a greater pressure on the local tree resources. It remains to be seen how they will react to these trends and what kind of strategies they will develop to defend their specific access to tree resources.

References

- Barrett, H. & Browne, A. (1995): Gender, environment and development in sub-Saharan Africa. Pp. 31-38. In: Binns, T. (ed.): *People and Environment in Africa*. Chichester, John Wiley.
- Batterbury, S. P. J. (Forthcoming): Development, planning, and agricultural knowledge on the Central Plateau of Burkina Faso. In: Robson, E. & Cline-Cole, R. (eds.): *West African Worlds. Local and Regional Paths through 'Development', Modernity and Globalisation*. Pearson Education.
- Benjaminsen, T. A. & Lund, C. (2002): Formalisation and Informalisation of Land and Water Rights in Africa: An Introduction. In: Benjaminsen, A. & Lund, C. (eds.): *Securing Land Rights in Africa*. The European Journal of Development Research 14(2): 1-10.
- Chweya, J. A. & Eyzaguirre, P. B. (1999): The Biodiversity of traditional leafy vegetables. Rome, IPGRI.
- Davies, J. & Richards, M. (1999): The use of economics to assess stakeholder incentives in participatory forest management: a review. European Union Tropical Forestry Paper 5. London and Brussels, Overseas Development Institute and European Commission.
- Drabo, I. (2000): Le dynamisme des migrants Moose dans l'Ouest du Burkina Faso. L'exemple du système de production Moaaga dans la province des Banwa. *Annales de l'Université de Ouagadougou, Série A, XII: 173-201*.
- Fold, N. & Reenberg, A. (1999): In the shadow of the 'Chocolate War': local marketing of shea nut products around Tenkodogo, Burkina Faso. *Geografisk Tidsskrift, Special Issue 2: 113-23*.
- Fontès, J., Diallo, A. & Campaoré, J. A. (1995): Carte de la végétation naturelle et de l'occupation du sol, Burkina Faso, Paris, ICIV.
- Gausset, Q., Ræbild, A., Ky, J.-M. K., Belem, B., Lund, S., Yago, E.-L. & Dartell, J. (2003a): Opportunities and Constraints of Traditional and New Agroforestry in south-western Burkina-Faso. *Paideusis - Journal of Interdisciplinary and Cross-Cultural Studies 3: 1-26*.
- Gausset, Q., Ræbild, A., Belem, B. & Dartell, J. (2003b): Land tenure, forest policies, and forestry practices in Burkina Faso: Some preliminary findings from two villages. *SEREIN - Occasional Paper 15: 133-53*.
- Gregersen, H. M., Arnold, J. E. M., Lundgren, A. L. & Contreras-Hermosilla, A. (1995): Valuing forests: context, issues and guidelines. *FAO Forestry Paper 127*. Rome, FAO.
- Hagberg, S. (2001): In Search of Nyo: Lyela Farmers' Perceptions of the Forest in Burkina Faso. *Africa 71(3): 481-501*.
- Hardin, G. (1998): The Tragedy of the Commons. Pp. 101-14. In: Nelissen, N. et al. (eds.): *Classics in Environmental Studies*. Utrecht, International Books.
- Helmfrid, S. (1998): La cueillette féminine dans l'économie familiale: L'exemple d'un village cotonier burkinabe. Rapport de recherche. Ouagadougou, CNRST and IRD.
- Hilhorst, T. (2000): Women's Land Rights: Current Developments in Sub-Saharan Africa. Pp. 181-96. In: Toulmin, C. & Quan, J. (eds.): *Evolving land rights, policy and tenure in Africa*. London, IIED.
- Joekes, S., Heyzer, N., Oniang'o, R. & Salles, V. (1994): Gender, Environment and Population. Pp. 137-65. In: Ghai, D. (ed.): *Development and Environment: Sustaining People and Nature*. Oxford, Blackwell Publishers.
- Khouw, L. & Golane, C. (1987): L'importance économique du karité pour les femmes. Pp. 150-8 in: *Recueil des communications présentées au séminaire national sur les essences forestières locales, tenu à Ouagadougou du 6 au 10 juillet 1987*. Ouagadougou, CNRST.
- Ki, G. (1994): Etude socio-economique de la gestion de *Parkia Biglobosia* (Jacq) R.Br. Ex G Don. (Néré) au Burkina Faso. MA Thesis. Ouagadougou, Université de Ouagadougou, IDR and CNSF.
- Lavigne Delville, P. (2002): When Farmers Use 'Pieces of Paper' to Record Their Land Transactions in Francophone Rural Africa: Insights into the Dynamics of Institutional Innovation. In: Benjaminsen, A. & Lund, C. (eds.): *Securing Land Rights in Africa*. The European Journal of Development Research 14(2): 89-108.
- Leach, M. (1994): Rainforest relations. Gender and resource use among the Mende of Gola, Sierra Leone. Washington, D.C., Smithsonian Institution Press.
- Lykke, A. M., Mertz, O. & Ganaba, S. (2002): Food Consumption in Rural Burkina Faso. *Ecology of Food and Nutrition 41: 119-53*.
- Mathieu, P., Zongo, M. & Paré, L. (2002): Monetary Land Transactions in Western Burkina Faso: Commoditisation, Papers and Ambiguities. In A Benjaminsen and C Lund (eds.) *Securing Land Rights in Africa*. The European Journal of Development Research, 14(2): 109-28.
- Mertz, O., Lykke, A. M. & Reenberg, A. (2001): Importance and Seasonality of Vegetable Consumption and Marketing in Burkina Faso. *Economic Botany 55(2): 276-89*.

- Mertz, O. & Reenberg, A. (1999): Building on diversity: pathways to agricultural intensification in Burkina Faso. *Geografisk Tidsskrift, Special Issue 2*: 125-37.
- Nathan, I. (2002): People, tress and agriculture in Africa (Petrea) research programme: the case of Burkina Faso. SEREIN - Occasional Paper 13: 19-39.
- Ouédraogo, A.S. (1995): *Parkia Biglobosa* (Leguminosae) en Afrique de l'ouest: biosystématique et amélioration. Wageningen, Institute for Forestry and Nature Research IBN-DLO.
- Ouédraogo, M. (2002): Le foncier dans les politiques de développement au Burkina Faso: enjeux et stratégies. Dossier IIED 112. London, IIED.
- Thorsen, D. & Reenberg, A. (2000): Marginal producers or breadwinners: Women's cropping strategies and access to agricultural key resources in Boulgou province, Burkina Faso. *Geografisk Tidsskrift - Danish Journal of Geography* 100: 47-59.