

THE TREE TENURE FACTOR IN AGROFORESTRY WITH PARTICULAR
REFERENCE TO AFRICA

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ABSTRACT

Rights over trees are often distinct from rights over land. Tree tenure consists of a bundle of rights over trees and their produce which may be held by different people at different times. These rights include the right to own or inherit trees, the right to plant trees, the right to use trees and tree products, the right to dispose of trees and the right to exclude others from the use of trees and tree products. Factors affecting who had what rights include the nature of the tree, the nature of the use and the nature of the person or group. Landowners and tree plants tend to be relatively advantaged in terms of their rights to trees. Those with temporary claims to the land and, in some case, women, tend to be disadvantaged. The implications of tree tenure issues for the design of agroforestry projects are discussed.

KEYWORDS: agroforestry, tree tenure, Africa, social science

RESUMEN

Los derechos sobre los arboles muchas veces son distintos a los derechos sobre la tierra. La propiedad del arbol consiste en un lote o derechos sobre arboles y sus productos que pueden ser mantenidos por distintas personas en distintos tiempos. Estos derechos incluyen el derecho a poseer o heredar arboles, el derecho a plantar arboles, el derecho a usar arboles y los productos arboreos, el derecho a disponer de los arboles y el derecho a excluir a otros del uso de los arboles y los productos arboreos. Se incluyen en los factores que afectan quienes tienen determinados derechos la naturaleza de los arboles, la naturaleza de su uso y la naturaleza dela persona o grupo. Terratenientes y plantadores de arboles tienden a tener ventajas en terminos de sus derechos sobre los arboles. Aquellos con derechos temporales y en algunos casos las mujeres tienden a estar en desventaja. Aqui se discute la problematica de las implicancias de la tenencia de los arboles para el diseno de proyectos silvo-agropecuarios.

The right to own or inherit trees

Murray [56,57] has emphasized the importance to agroforestry projects of the right of the planter to own trees and completely control their usufruct. But in many systems the right to own may be vested in the community or a kinship group larger than the household [27,59,60,84]. In some cases, trees may be owned even when the land on which they are grown cannot be [58,83,]. In other cases, as in Niger, forest regulations do not permit individual ownership of trees [72]. The laws of succession involving trees can be as complex as those involving land. It has been reported that in Sudan palm trees could be subject to complex fractional ownerships due to the laws of inheritance [44].

The right to plant trees

The right to plant trees, an obvious prerequisite for agroforestry, may be restricted. Particularly in Africa, planting a tree may give the planter rights over the land on which it is planted. The result is that planting trees may be used as a means to get or maintain rights to land. In the 1940's Basotho chiefs discouraged the planting of trees on arable land for this very reason [49] and the prohibition has carried over into more recent times [22]. Planting restrictions have been reported for the Luguru in Tanzania [10] and the Yoruba of Nigeria [49]. It has been reported that trees may be planted as visible evidence of a claim to land in Kenya [12,76]; Upper Volta [79] and Indonesia [86]. In Tanzania, planting permanent trees without permission on the land of another could be construed as "misbehaviour" and constitute grounds for eviction [36]. In Zambia, tree planting by the colonial government was regarded as its attempt to seize land [58].

INTRODUCTION

Agroforestry depends on people's rights to plant and use trees, rights which in turn depend on the prevailing systems of land tenure and tree tenure. While the importance of land tenure in agriculture,

forestry and agroforestry is clearly recognized, the distinction between land and tree tenure often is not. A frequent implicit assumption is that tree tenure is identical with land tenure. Further, the influence of trees on land tenure is often not recognized.

The literature provides many examples of the distinction between land and tree tenure. For example, the principle that trees and land can be sold separately has been reported for Tanzania [6,17,64], Nigeria [47,59], Ghana [63], Uganda [44], and Indonesia [86]. It has been noted that under Ottoman Land Law, the trees on Cyprus were owned separately from the land and that "the owner of one could not sell his interest without giving a prior right of purchase to the owner of the other." [49] In some cases, certain uses of trees and tree products are permitted to all regardless of who owns the land on which the tree is growing [5,71].

This article analyses the components of tree tenure and discusses their importance in the field of agroforestry.

COMPONENTS OF TREE TENURE

Tree tenure consists of a bundle of rights which may be held by different people at different times. Four major categories of rights make up the bundle which comprises tree tenure: the right to own or inherit, the right to plant, the right to use, and the right of disposal.

The principle that planting trees establishes a claim to the land was weakened in Tanzania litigation. In 1965 in Iddi Juda Omari v. Issa Abdallah, the Court held the customary law "when a person occupies a land and plants sisal or trees of permanent nature on the shamba (field), then the shamba belongs to him, no matter how long he stays without cultivating it" to be "unreasonable in modern Tanzania" [35] (cf also [37]).

But in many places this principle continues to hold currency and affects the ability of people to participate in agroforestry projects.

In other cases, the planter does not obtain land rights but does retain ownership of the tree and with it the right of access to the tree. Such rights of access can be extremely disruptive to other uses of the land.

The right to use trees and tree products

1) The right to gather may include the right to gather or lop off dead branches or strip off hanging bark and the right to gather things growing on a tree such as fungus, insects, or birds' nests. For example, a Peruvian agrarian cooperative allowed free gleaning of eucalyptus bark [75].

2) The use of the standing tree may be necessary for curing hides or for hanging honey barrels. Among the Kamba, honey barrels would be hung in trees on one's own land, on the land of another with permission or in unoccupied trees in the commonage. The owner of the honey barrel then had the right that his bees not be disturbed [62].

3) The right to cut all or part of a living tree for timber or building poles can be an important one. The cutting of living trees for fuelwood is generally frowned on unless it is scarce.

4) The right to harvest produce such as fruit, nuts, and pods does not necessarily accrue to either the owner of the tree or the owner of the land. In parts of Nepal it has been reported that fruit is considered a common good [8].

5) The right to use produce under the tree may be less restricted than other rights. Leaves and twigs and even fallen fruit often may be collected from the ground under trees which are owned by others. Among the Semarang of Malaysia in the 1920's, fallen fruit was a common good even inside a private compound [71].

The right to dispose of trees

1) The right to destroy the tree by uprooting or chopping down individual trees or by clearing a section of forest

2) The right to lend the use of the tree to someone else

3) The right to lease, mortgage or pledge the tree

Tree pledging, or leasing is practiced in Nepal [61], Nigeria [2], Sierra Leone [39] and Ghana [60]. (Pledging is distinguished from mortgaging by the fact that the pledgee assumes control of the tree

immediately rather than after a process of foreclosure.)

4) The right to give away or sell the tree either together with or separate from the land

An Ashanti father in Ghana could give trees to his children before his death [65]. In Tanzania, Abrahams [1] reported the right to sell fruit trees as a recent innovation and Dobson [20] reported that even the planters of trees among the Sambia did not have the right to sell them. But Meek [49] reported that in Tanzania rights in mango and other trees could be bought and sold.

WHO HAS WHAT RIGHTS?

Four classes of right holders must be considered separately: the State, groups, households and individuals within households.

The State exercises its rights in three basic ways.

a) It may regulate (or attempt to regulate) the use of trees owned by others. Certain species may be declared as protected no matter where they are located to be used only with official permission which often involves paying a bribe. This sort of legislation has been reported as detrimental to agroforestry projects in Haiti [57] and Niger [72].

b) The State may prohibit or restrict the use of trees in forest reserves. Forest reserves often are the subject of serious conflict between the State and people living near and within forest reserves. A forest reserve may contain land that is essential to the economy of the surrounding area. This has been reported as a problem in India [28], Nepal [4] and the United States [41] and is known as a problem elsewhere. The State may also allow outsiders to utilize forest resources while prohibiting local people from doing so [54].

c) The State may allow limited use of forest reserve land. In many countries people are allowed to satisfy basic needs for fuelwood, fodder, poles and minor forest products from forest reserves. The taungya system takes this a step farther and actually allows farming on forest land in

return for planting and caring for tree seedlings. But where landlessness is acute, the taungya farmer may ensure that the seedlings do not survive, in order to remain on the land. Farmers may also plant tree crops in order to establish a more permanent claim to the land.

Groups need to be considered in three categories.

Groups may be geographically defined. All the residents of a certain village may be granted used rights while those enjoyed by "strangers" are denied or restricted. The principle that only "local people of the neighbourhood" could harvest palm trees [78] was upheld in a 1926 Nigerian court case [23]. Traditionally among the Nyakyusa of Tanzania, it was residence in a village which gave land (and with it tree) rights [27]. Rules restricting the rights of "strangers" are reported for the Tanzania coast [7,80], the Yoruba of Nigeria [47], and Ghana [60].

Kin groups (which frequently may have a specific territory under their control) may also restrict rights to their members. Tree rights among the Melaban Kantu of Indonesia are vested in such groups [21]. In West Sumatra the decision to cut a valuable tree is made by the extended family [51].

Non-kin groups such as corporations or cooperatives may (usually with the acquiescence of the State) exercise rights over a particular area. Such rights (as those granted logging companies) may in fact conflict with the ancient rights of local people [42]. The establishment of cooperatives on the old haciendas of Peru led to a redefinition of use rights, causing much community conflict. Cooperatives can restrict the right to gather fuelwood to their members and their families, disenfranchising non-members and widows of members of long standing [75].

The tree rights of households may reflect lines of fragmentation such as religion, caste, class, ethnic group or geographical origin [11].

Individuals within a household may also have different rights depending on gender, birth order, or intrafamily status.

FACTORS AFFECTING WHO HAS WHAT RIGHTS

Three general sets of factors affect who may exercise what rights when over what trees: the nature of the tree, the nature of the use and the nature of the land tenure system.

The nature of the tree

Different rules may attach to the tree depending on whether it has been planted deliberately or whether it is self-sown. This distinction is based on the principle that "labour creates rights" [51].

The general rule of thumb is that wild or self-sown trees are community property as shown for Malawi [34], Uganda [30], Zimbabwe [32], Sierra Leone [39], Botswana [69], Lesotho [22], Upper Volta [79], Tanzania [1,17], Kenya [12,85], Zambia [25], Cook Islands [19]. In Ghana and Nigeria, wild trees growing on private land were reported to be the property of the landowner [47,63]. Planted trees generally belong either to the planter or to the owner of the land.

The doctrine of labor creating rights may be extended to wild trees if labour is invested in making the tree usable. Thus, the pre-European Ojibwa recognized private rights to wild sugar maples [31].

The nature of the use

The rules which apply to subsistence use often differ from those which apply to commercial use. Trees which are used for subsistence, particularly those which are growing on a commons, are often free for use by all. In contrast, the use of trees for commercial purposes may be restricted to trees growing on the seller's property or may be forbidden altogether depending on the particular use [7, 13, 20, 46, 55, 63].

Fuelwood has traditionally been a common good although the rules governing its access may tighten as it becomes increasingly scarce.

The use of trees serving community purposes may be restricted. Particular trees or groves of trees may be considered sacred or the dwelling place of spirits and thus be protected from use or cutting. This protection often also serves a soil and water conservation function.

Sacred trees or groves have been reported in Kenya [14,52,81], Uganda [30], Tanzania [18], Indonesia [9], Philippines [16], and Colombia and Venezuela [67].

Trees have long performed a service role in the form of shade. Cutting down shade trees may be prohibited [85] or considered to indicate a lack of intelligence [20,70]. In Botswana it was forbidden to cut trees in the immediate vicinity of a village [69]. On the other hand, shade trees were (and are) sometimes cut down because they were thought to harbor snakes (E. Colson, personal communication).

The nature of the land tenure system

Although tree and land tenure are distinct, each affects the other. As has been shown, planting trees can be used to establish de facto private ownership of land. On the other hand, rights in land also affect rights to trees.

Where land tenure is communal and tree rights are strong, it would appear that tree planters are advantaged in their rights to trees. (It is possible that this is particularly true in the case of shifting cultivation.)

Tree Planters. The person who plants a tree in many societies is the owner of that tree. This is (or was) the case in Zaire [48], Ghana [68], among the Iteso [43], the Nyamwezi [1], the Hanunoo of the Philippines [16], the Dayaks of Indonesia [86], the Sukuma of Tanzania [17] and among the Ibo of Nigeria [59]. Forest farms in the Republic of China own the trees they plant [50]. Among the Ashanti, those who cooperated in clearing virgin forest were joint owners of the fruits of the trees grown in the clearing [65]. Spencer [77] reports as a general principle of shifting cultivation in Southeast Asia that the use of productive trees is the private property of the planter and that the trees may be inherited. In West Sumatra the inheritance of shares of trees and their produce depend in part on who planted the tree [50].

In contrast, where private rights to land are strong, the strength

of one's rights to trees may depend on the strength of one's rights to land. In this case, landowners are relatively advantaged while those with temporary or weak claims to land (tenants, including both share croppers and lessees, squatters, pledgees, mortgagees and women) may be relatively disadvantaged. The latter often have restricted rights because of the possibility of using trees to establish a permanent claim to land as discussed above.

Landowners. In Nigeria the "owner of the land invariably owns the forest on the land" [3]. Among the Buganda all trees eventually became the property of the landowner [55]. In Lesotho the court held that trees belong to the owner of the land whether or not they had been planted with the chief's permission [22]. Among the Fanti of Ghana, the landowner had full rights to trees on the land and could not, "be improved out of his land" with trees planted by someone else [68]. Among the Botswana trees could not be cut on the field of another without permission [70].

Tenants. In the last century, Kikuyu tenants in Kenya had to cultivate around any trees standing in the field and could not fell trees for construction or manufacture without the permission of the landlord [45].

Among the Buganda, a tenant was not allowed to sell trees of any sort. He could plant economic trees but the landlord got a share of the proceeds and became the owner of the trees upon the tenant's departure (30).

According to Kludze [40] gratuitous tenants in Ghana may not sell or fell economic trees. Under the temporary systems in Ghana the tenant must maintain economic trees which are growing on the land but may not plant any himself. The owner has the right to the fruits of these trees although the tenants may harvest for his personal use, never for sale. Without the permission of the landlord, he may not fell certain trees [60].

In Nigeria, among the Ibo the share cropper may plant a few economic trees, the number being determined by the number which a typical farmer in the community would be growing. Use rights to any trees planted by the owner remain with the owner throughout the share cropping tenancy. However, the use of self-sown trees is vested in the share cropper who also retains the inheritable rights to any economic trees which he has planted even after the tenancy ends [59]. Among the Ibo, the lessor retained the rights to economic trees but the lessee was permitted to climb them and to prune them to allow cultivation. In practice this meant stripping off all the leaves and branches. The lessee could also cut down non-economic trees if it were "safer and more reasonable in the circumstances" than pruning them. The lessee did, however, have to protect economic trees from fire. If a specific tree was leased, the lessee could not damage the tree [59]. Annual tenants among the Yoruba have neither the right to plant trees nor to use existing ones [47]. In Fiji a lessee could not cut down trees without the consent of the lessor nor could he sell "any forest produce growing on the land" [49].

Borrowers are under similar restrictions. Among the Gourmantche of Upper Volta borrowers are not permitted to plant trees since this would establish inheritable rights in the tree and, in practice, the land shaded by it [79]. In Costa Rica, borrowers are permitted to plant only annual crops [73].

Squatters have strong reasons to try to get title to the land. In Costa Rica, squatters who hold the right of access and use try to make their title more permanent by planting trees as the law requires compensation for crops and improvement; producing coffee and peach, palm trees are generally worth more than the land [73].

On the coast of Tanzania squatters traditionally could plant trees (except cloves) and have rights over the usufruct [6].

A particularly troublesome case of squatters and trees can be

found on the coast of Kenya where squatters worked for a small wage and paid rent for land to cultivate for themselves. With the introduction of cashews in 1937, the value of the cashew crop was far higher than the value of the rent. Eventually, an agreement was reached under which squatters could plant cashews in which they had inheritable rights but which protected the interests of the landowners. In eleven of the 296 arbitration cases resulting from evictions beginning in 1957/58, two awarded the trees to the squatters, two split them half-half, and seven awarded them to the landowner. (The legal principles are unfortunately not specified.) [74].

Pledgees or Mortgagees had rights based on the principle that the usufruct of the trees served as the interest on the loan. Among the Yoruba, it was felt that the pledgee should have use of the trees for a minimum of two or three years in order to be fairly compensated [47].

Under Ibo law the pledgee may not plant economic trees without the consent of the owner. If he does, the owner may destroy them when the pledge is redeemed. Further, since the land and the trees may be pledged separately from each other, obtaining pledge to the land does not automatically imply the right to use the trees [59].

In Ghana, the pledgee (depending on the rights of the pledgor) may use any economic trees including the rights to fell or tap palm trees. He may also grow economic groups. Only if the pledgor redeems the land prematurely, must he bear any of the cost of such improvements [60].

Among the Haya of Tanzania a mortgagee could fell trees but could not plant them [18].

Women

Women as a category do not always have restricted rights. Among the Ibo, women have very detailed rights to trees [59]. Tanner [80] found that nearly as many women owned palm trees as did men on the Tanzania coast, reflecting the influence of Islamic law. Meek [49] found that women could inherit rubber land in Malaysia.

But in societies where women are not permitted to own land, their rights in trees may be restricted. Where planting trees establishes rights to land, women may be forbidden to plant trees to preventing them from using this route to obtain land. Or women's rights to both trees and land may be a function of residence and marriage. Where marriage is not a stable institution, women's tree rights may be equally precarious.

THE IMPLICATIONS OF TREE TENURE FOR AGROFORESTRY

In any agroforestry system tree tenure issues must be carefully examined to avoid the following problems.

1) The loss of rights may result from an agroforestry project as a consequence of a number of factors:

a) The project may disturb or destroy rights to other uses of the land or the trees on it. Hoskins [33] has described a fuelwood project which involved the clearing of "useless" bush which was in fact the source of numerous products. Agroforestry projects such as alley cropping [38] may involve the loss of the right to use the space where the trees are planted.

b) Certain practices for cultivating and protecting trees may result in the loss of gathering rights.

c) When the value of trees is increased there is a tendency for both land and tree tenure to shift from communal to private holdings. The effect of privatization of land in Kenya was to reduce access rights to trees and certain tree-dependent activities such as the production of honey dropped off [13]. Similar effects may be expected to associate with other shifts in tenure.

It may be useful to construct a table such as the following and determine who may lose what rights as a result of the project. The users category should include whatever groups are relevant in a given project area. For each category of use, their probable gain or loss should be recorded. The loss in rights might be a result of expropriation of land for the project, rising market values of trees and tree-related products,

Table 1. Assessing the effect of an agroforestry project on use rights^a

| Users | Twigs Leaves | Fuelwood | Fruits/ nuts | Fodder | Use of Standing Tree | Timber/ Construc- tion | Other Sub- sistence | Commer- cial | Gain or Loss |
|--|-----------------|----------|-----------------|--------|----------------------------|------------------------------|---------------------------|-----------------|--------------------|
| <u>By Gender:</u> | | | | | | | | | |
| Men | | | | | | | | | |
| Women | | | | | | | | | |
| <u>By Landed Status:</u> | | | | | | | | | |
| Landless households | | | | | | | | | |
| Households with temp- orary land rights | | | | | | | | | |
| <u>By Farm Size:</u> | | | | | | | | | |
| Small farmers | | | | | | | | | |
| Large farmers | | | | | | | | | |
| <u>By Special Uses:</u> | | | | | | | | | |
| Forest De- partment | | | | | | | | | |
| Grazers | | | | | | | | | |

^aThis table has been adopted from [24] at the suggestion of Robert Chambers.

or privatization of land. For example, the commercialization of fuelwood through the establishment of woodlots might lead landless households to lose fuel gathering rights. In the final column a judgment should be made as to which of the categories are net gainers or net losers. This table would allow a project design team to determine what categories of people might be overall gainers or losers as a result of the project and what kinds of rights are in greatest need of protection.

2) The protection of the trees can be a problem. The ability to exclude others from the use of trees and tree products is essential if tree planters are to reap the benefit of their investment. In the Nepal case cited above, tree owners had no right to exclude others from the use of their fruit trees for religious reasons. In contrast, the religious beliefs of the Dogon of Mali served to protect fruit [26]. While one may have a legal right to prevent others from using resources including trees, in communities based on a system of reciprocal rights and obligations this is often very difficult to do [66,82]. The personal or institutional capacity to enforce exclusionary rights may be very small indeed. In the Sudan forest officers knew perfectly well that illegal tree cutting was taking place daily on government land, but were totally unable to prevent it [29].

Protection is particularly a matter of concern when agroforestry is undertaken on waste lands. If there are clear communal rights to use such trees either because they are growing on community land or because of the use to which they are put or if there are ambiguous or unenforceable rights to exclude others from their use, the project may be in considerable difficulty.

3) Certain categories of users may be unable to participate in the project because they do not have the right to plant or own trees. This is likely to be true of the landless, those with temporary claims to land, and women. In many places, these three categories singly or in combination will comprise the majority of the population. Thus, a

project which does not take this into account may end up serving a relatively advantaged minority of the population, or such a project may be destroyed by those who are excluded from it.

4) Because trees can be used to establish rights to land, it is necessary to monitor who is planting project trees where. Agroforestry projects can be used by private individuals to establish private claims to communal land (cf [15]). Similarly, it is necessary to ensure that the community accepts the planting of trees on community land for otherwise disenfranchised people.

CONCLUSION

There has been a perhaps understandable tendency to think of agroforestry in terms of the biological meaning of trees and in terms of land tenure. Yet it is also necessary to consider the social meanings of trees including the norms of tree use and the long standing body of customary law dealing with tree tenure. Such considerations are essential to understanding the management of resource systems which include trees and in designing agroforestry projects. Identifying who holds what tree tenure rights will help the project designer avoid the unintended destruction of existing rights, the exclusion of certain groups from project benefits or the capture of the project by an elite for its own purposes.

The identification of existing rights should not be taken as the definitive answer to the problem of tree tenure. Tree tenure rights have been shown to shift over time - often in the direction of privatization as tree resources have become scarce or commercially valuable often affecting land tenure as well [53]. Systems of tree tenure are no more static than other forms of social organization. Indeed, the systematic study of agroforestry which has resulted in refinements such as the alley cropping system may bring about new rights and new pressures on existing tenure. It is with these new directions that future research must be concerned.

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