impact on the forest, communities become more aware of the need for sustainable management, and motivation levels increase as a sense of ownership of the process develops.

See also: **Landscape and Planning**: Perceptions of Nature by Indigenous Communities. **Social and Collaborative Forestry**: Canadian Model Forest Experience; Common Property Forest Management; Forest and Tree Tenure and Ownership; Social and Community Forestry; Social Values of Forests.

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Forest and Tree Tenure and Ownership

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What is Social and Community Forestry?

Community forestry is a set of institutional arrangements in which communities are involved wholly or in part in decision-making and benefits and contribute knowledge and labor to achieve healthy forests and social well-being. Social forestry encompasses both multiple forms of locally initiated and implemented forest management as well as externally initiated social forestry projects. It ranges from formal, legally recognized arrangements such as comanagement agreements between communities or individual citizens and government forest bureaucracies, to:

- community management of government forest land
- the cumulative effect of tree planting and management on individual parcels
- forest commons
- communities that without government sanction management government forest land as a *de facto* commons.

Social forestry is a development strategy to stimulate community forestry. Analysis of property and land and tree tenure arrangements enable us to understand the distribution of costs and benefits of social forestry as well as the pitfalls that may befall it.

Basic Concepts in Property and in Land and Tree Tenure

Although people often think of property as a thing or the possession of a thing by someone, it is better understood as social relations between people

regarding the possession and use of things, that is, as a claim to some use or benefit of something that will be enforced by society or the government. Lawyers make a distinction between real property (that is, land in particular but also trees, water, and minerals) and personal property (clothing, copyrights, goodwill, and so forth). Lawyers are, as a general rule, interested only in property rights recognized by the government. They ask the question: what does the law say?

In contrast, social scientists are also interested in the interface between rights and reality often referred to as tenure. They ask the question: How do claimants to rights actually behave regardless of the law? Tenure is a term borrowed from archaic English property law and refers only to real property. The doctrine of tenures which dates to eleventh-century England established the terms on which rights to land were granted. The doctrine of estates determined how long a person had the right to hold land. The present-day study of land and tree tenure encompasses both the doctrine of tenures and the doctrine of estates.

Legal Pluralism

When land tenure differs from formal property rights in land, scholars use the analytical concept of legal pluralism. Legal pluralism encompasses situations in which at least two legal systems coexist. In addition to national statutory and case law, legal pluralism takes into account legal regimes such as customary or traditional law codified and recognized by colonial regimes, religious law, and law created and enforced by smaller social groups. An example of legal pluralism can be found in the differentiation of property recognized under government law (*de jure* property) from property not recognized under government law but recognized by other social groups (*de facto* property). Depending on the circumstances, *de facto* property may be more important than *de jure* property in determining who may be where, when, and doing what. Legal pluralism may be especially relevant to social forestry in a forest area where an indigenous system of customary law coexists with government statutory law. Social forestry may be used to legitimate, and thereby strengthen, indigenous tenure and management.

Property as a Bundle of Rights

Property rights to trees and tree products on a parcel of land may be held by someone other than the landowner. The complexity such property relations introduce to understanding the role of property in social forestry can be analyzed with the concept of property as a bundle of rights (e.g., rights to use, sell, loan, give away, lease, destroy, bequeath) which may be held separately by different people at different times. While useful in revealing what kind of rights a particular property relation may entail, the bundle of rights concept has been criticized for not recognizing the interconnections and interdependence among different rights. The bundle of rights is often portrayed as a bundle of sticks in which removing one stick from the bundle has no effect on other sticks. Other images such as interconnected strings of genes have been suggested but have not achieved much currency in the literature.

Usufructuary rights Usufructuary rights, the rights to use something, add complexity to the bundle of rights. Different and overlapping usufructuary rights may be asserted simultaneously against the same forest or same tree. This is discussed below in the example of palm trees in the Dominican Republic. The rights to the trees on a parcel of land may be held by different people or institutions. For example, the rights to the fruit of date palms in Sudan were divided among the man (and they were all men) who obtained the shoot and planted it, the man who owned the land where it was planted, and the man who watered the young palm. Since these rights were inheritable, the number of right-holders grew in subsequent generations. Multiple claimants of this sort can make social forestry extremely complicated.

Different types of rights Types of rights included in a bundle of rights could include any combination of a variety of rights. One general cluster includes the rights to sell, loan, lease out, mortgage, or bequeath the tree itself or any or all of its products. A farmer might mortgage her cocoa trees or sell an entire mango crop before it is ripe to get immediately needed cash. The right to plant perennials such as trees is often constrained. Consumptive uses such as chopping down a tree for timber or poles constitute another set of rights.

Usufructuary rights may differ depending on where the tree or the product is located. Anyone may pick up fruit from the ground but taking fruit from the tree may constitute theft. Harvesting from a tree growing inside a compound (particularly if it is fenced) usually requires permission of the owner. Using trees growing elsewhere may not require permission. There may be differences in the rights to use different parts of or attachments to a tree such as leaves, flowers, needles, bark, roots, twigs, branches, nests, fruit, seed pods, and cones. Similarly

within a forest rights to (among others) grazing or browsing, thatching grass, medicinal plants, water for human use, water for livestock use, water for irrigation, mushrooms, berries, dead and downed wood, green wood, or wildlife may vary widely.

Security of Tenure

Security of tenure consists of three elements: breadth, duration, and assurance. Breadth refers to the composition of rights such as usufructuary rights, the right to sell, the right to bequeath, and the right to destroy. Larger numbers of rights are associated with more secure tenure. Duration is the length of time a right is legally valid. Longer duration is associated with more secure tenure. Assurance is the certainty with which a right is held. It reflects the predictability and enforcement ability of the tenure-granting regime. Security of tenure does not require private property rights. Rather secure tenure can be found in every form of property regime whether or not it is sanctioned by the government. It is often assumed that the greater the security of his/her/their tenure, the more likely a person or group will be to invest in the maintenance and enhancement of property. This relationship does not always hold. For example, forest owners with secure tenure might clear-cut and not replant because they have an urgent need for capital from the sale of timber.

Access

Access is the ability to benefit from things. A step beyond property-rights-based focus on 'who may' benefit, the ability-based focus of access is on 'who actually' benefits and how. The property question is who has rights to this resource. The access question is who actually uses and/or controls this resource. That is, it asks who does (or does not) get to use what, in what ways, when.

Mechanisms of access fall into three general categories.

Rights-based access Access may depend on rights defined by law or custom, encompassing both property and tenure.

Illegal access Illegal access involves the ability to benefit without the sanction of the government or society. It may involve stealth, violence, or establishing relations with people who control access. Illegal access differs from *de facto* rights in that *de facto* rights are sanctioned by a local community or group. In illegal access we see people who are not officially recognized beneficiaries helping themselves to the benefits of social forestry.

Structural and relational mechanisms of access Property rights in or access to forest land and trees are not the only kind of property or access that matters in community forestry. Access to technology, capital, labor, knowledge, and markets can affect the ability of people to benefit from social forestry. For example, the value of timber harvested from a community forest may depend on access to processing machinery such as a sawmill. If that machinery is owned by others, then the size of the benefits received by social foresters depends on the terms of access to the machinery.

Gendered Property and Tenure

There is no entry on women and forestry in this Encyclopedia. This is indicative of a general problem of which gendered property rights in forests and trees is only one manifestation. Women and their knowledge about and their uses of trees and forest resources are often invisible to forest agency staff, foresters, forest project planners, and implementers, and even to their own husbands.

Three aspects of gendered property and tenure are related to social forestry.

Gender and security of tenure When the household is assumed to be a homogeneous unit, women's property rights (or the lack of them) are made invisible, often with adverse consequences for women. Even in households with secure tenure, women's property rights are often insecure. In most of Africa, for example, the breadth of women's security of land tenure is narrower than men's since it significantly less frequently than men's includes the ability to rent, give away, loan, lease, sell, or bequeath. In many places women acquire access to land not in their own right but through their fathers, husbands, and brothers. Daughters may have no rights of inheritance from their parents or may be unable to exercise their inheritance rights. The corollary to this principle of access to land is that the fruits of a woman's labor on the land often belong to her husband or his relatives, not to her. Security of duration of tenure is a matter of particular concern for women living under a gendered property regime in which changes in marital status can be catastrophic for them. It is not uncommon in the case of divorce for property acquired by a woman during marriage to become her husband's property, leaving her destitute. Widows may have limited property rights. They may have no right to inherit their husband's property, including trees that they themselves have planted and tended. In central Zimbabwe such insecurity of land and tree tenure for women appears to have resulted in significantly less tree planting by women than by men.

Women's usufructuary rights may be even less secure. In the Dominican Republic, palm trees owned by the men were subject to two sets of usufructuary rights. Women had usufructuary rights to the fronds while men had usufructuary rights to the fruit which they fed to their pigs. After their pigs were destroyed in a national campaign to contain an outbreak of swine flu, the men simply cut down the now useless (to them) palms, leaving their wives without access to a source of fronds.

Gender and title Governments may undertake land titling programs in the hopes that it will increase security of tenure and, therefore, will increase productivity of agricultural or forest land. Generally the title is put in the name of the male head of household, although in some cases widows and/or divorcees may receive the title in their own name. Wives, however, may lose land that is theirs by right as well as long-standing usufructuary rights. For example, in the current land titling under way in Laos, the title to all household land (including land that came from the wife's family) is put in the name of the husband. If the title includes the right of the titleholder to sell the land, the wife is in a precarious position. Thus, if social forestry includes land titling, women may end up worse off in terms of their rights to land and trees.

Gender and access Women may have secure property rights in land or trees but lack access to or control of their own property due to gendered power relations. Intrahousehold power relations may lead to men controlling the use of and the distribution of benefits from forest land and trees that their wives, mothers, sisters, or daughters legally own. Women may acquiesce in such arrangements either because they have no choice or as a conscious investment in long-term social capital.

Property and Social Forestry

The outcome of social forestry can be affected by property and tenure relations in a number of ways. The relationship of tree planting and harvesting to the creation of property rights can be a key factor. Under some circumstances clearing forest creates rights to the land on which the trees grew, while in others planting trees creates rights to the land on which the trees are planted. People's willingness to plant trees or harvest trees or allow others to do so may depend on the property outcomes of these acts. Social forestry may include a wide variety of usufructuary rights such as collecting firewood, moss, leaves, or pine needles, cutting poles or timber, grazing domestic animals, hunting, gathering wild foods and medicines, as well as religious practices.

Social Forestry on Private Land

Private property (also called freehold property) is owned by an individual or group of individuals or legal persons such as partnerships or corporations. Within the limits set by the government (in such forms as taxation and zoning) or social practice, the owner has the right to use the land or trees as s/he sees fit. Social forestry programs may take the form of sponsoring the planting and maintaining of trees on private property. When tree planting creates property rights or when the closing canopy will make other uses impossible, tree planting for a social forestry project may also be used as a weapon in property struggles. This use of tree planting to seize control of land is sometimes called the 'green machete.' For example, in The Gambia, men used tree planting sponsored by an agroforestry project to drive women off the land they had been using for lucrative vegetable production.

Social forestry may involve privatizing public forest land on the grounds that this will lead to better management. This is not necessarily so. Both large and small holders of privatized parcels may be under financial pressure to harvest their parcel or sell it to speculators. In either case, privatization may lead to conflicts between the new private *de jure* right holders and pre-existing *de facto* right-holders.

Social Forestry on Forested Commons

Joint ownership, management, and use of forest and tree resources by a designated group of users, often all or part of a community, is known as the commons or a common pool resource. In contrast to private property, the resource can not be sold, mortgaged, leased, or bequeathed outside the group. Common pool resources are sometimes confused with open access resources that anyone may use. Garrett Hardin's 'tragedy of the commons' argument that common property is inevitably degraded actually describes an open access resource, not a commons. Contrary to the 'tragedy of the commons' argument, when it is difficult to exclude users from resources such as forests that are subject to degradation, a commons system often constitutes the most effective property regime. One reason for this is that common property regimes generally include specific responsibilities as well as rights.

Elinor Ostrom's 'design principles' regarding the sustainability of common property resources are discussed in detail elsewhere (*see* **Social and**

Collaborative Forestry: Common Property Forest Management). The importance of each principle differs under different circumstances; however, monitoring has been found in many systems to be the most crucial component.

A clearly defined user group is an important component of effective common property regimes. Since local communities are rarely socially or economically homogeneous, it would be erroneous to assume that local user groups represent all community inhabitants. Externally initiated projects on forest commons may attract the interest of village elites and hence have the potential to harm women, the poor, and migratory users unless careful attention is paid to access, property, and tenure.

Women In social forestry systems on common property, if the decision-makers are male, women's uses of forest and tree products may not be incorporated into the management plan. The loss of access to these resources may create serious hardship for women.

The poor An initially widely praised social forestry project of tree planting on a common turned out to have been a successful move by village elites to seize the common land by planting trees on it. In another case, poor villagers begged visiting agroforestry experts not to replace the crooked thorny trees on the commons which only they used with productive multipurpose trees which would attract the attention of the rich and reduce their access to the resource.

Migratory users Nomadic pastoralists who have seasonal usufructuary rights, for example to graze their animals on a forest commons, are frequently overlooked when a social forestry project introduces a new management system with the result that they lose their access to the common resource.

Social Forestry Undertaken by a Community on Government Land that is not Effectively Controlled by the Government

Not every government controls every inch of its territory. In places where central government control is weak, local systems of rules may have a far greater effect on behavior than the government legal system. For example, in Teri Garhwal, India local communities managed parts of oak forest that was *de jure* government forest. A community's *de facto* rights to clearly defined areas of the forest were recognized and respected by other communities. The government's *de jure* property claim was simply irrelevant to local practice.

Social Forestry Undertaken in Collaboration by the Government and Local Communities on Government Controlled Forest Land

One of the earliest and probably the best-known example of social forestry undertaken in collaboration by the government and local communities on government controlled forest land is Joint Forest Management (JFM) initiated by the Indian Forest Service. This kind of social forestry in which the government forest is protected and/or managed by local people in return for usufructuary rights to forest and tree products or the right to farm in the forest is common throughout South and Southeast Asia and parts of Africa. In a related model, the government may give local people rights to harvest subsistence goods from individual trees such as trees on roadsides.

In a different kind of social forestry in the USA, the government allows local people to participate in decision-making about and/or implementation of forest management of government forest land as a means of reducing legal challenges to its management decisions. It also benefits from local expertise and sometimes labor.

Although they may be interested in access to forest resources, local citizens may also participate in such social forestry out of personal commitments to forest health, hope of employment, or a desire to protect or enhance their private property adjacent to a forest. For example, residents of mountain forest communities in California participate in fire management planning and implementation on adjacent government forest land in order to ensure effective forest fire management to protect their privately owned homes. This is another example of the point that property rights in or access to forest land and trees are not the only kind of property or access that matters in social forestry.

The Butter Creek Watershed Analysis in California is another example of this sort of social forestry. The US Forest Service hoped to get buy-in from local citizens holding diverse, often opposing views about government forest management by involving them in identifying desired future outcomes, analyzing current conditions, and choosing suitable management activities to achieve their goal. A long and sometimes contentious process of consultation and analysis resulted in what was widely viewed as a higher-quality watershed analysis than usual, increased understanding of the new forest management policy, improved relations between the US Forest Service personnel and the community, support for later projects, and a total absence of legal appeals against the plan.

In both of these cases, property rights remained unchanged but citizens gained access to the decision-making process affecting adjacent forest resources and, in theory, to the benefits of a healthy forest.

See also: **Landscape and Planning**: Perceptions of Nature by Indigenous Communities. **Social and Collaborative Forestry**: Canadian Model Forest Experience; Common Property Forest Management; Joint and Collaborative Forest Management; Social and Community Forestry; Social Values of Forests.

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Canadian Model Forest Experience

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Introduction

As a partnership-based strategy, Canada's Model Forest Program (CMFP) provides an excellent case study of collaborative forest management (CFM). In model forests, the partnerships and their goals are expanded beyond the relationships usually associated with CFM that are between industry or government professional forest managers and local communities. Model forest partnerships include a broad array of participants from all levels of government, industry, academia, Aboriginal communities, and other groups representing a wide diversity of timber and non-timber forest values. Canada, through the Canadian Forest Service (CFS) and the Canadian Council of Forest Ministers (CCFM) initiated this approach in 1991 as part of a long-term, nationwide experiment in developing approaches to sustainable development in forestry. The scale of CMFP is representative of Canada's forest sector, its diversity of socioeconomic circumstances, and its variety of forest types; it is the largest such undertaking in the world.

Origins of Canada's Model Forest Program

After the concept of sustainable development was introduced by the Brundtland Commission Report of 1987, it was clear that maximizing social, economic, or ecological goals independently through conventional management systems would not lead to sustainable development. To incorporate the concept of sustainable development, managers must integrate the goals of all three elements of development (social, economic, and ecological) and optimize these goals as a suite where balance is sought among all over time.

In developing an approach to sustainable development in forestry, Canada recognized the strengths demonstrated by CFM partnerships in integrating the goals of different partners, increasing awareness of forest values, improving knowledge to create potential solutions, and broadening the type of benefits derived from the forest and their distribution. By building on these strengths and increasing the constituency of participants in the partnerships beyond that of conventional CFM (which is generally