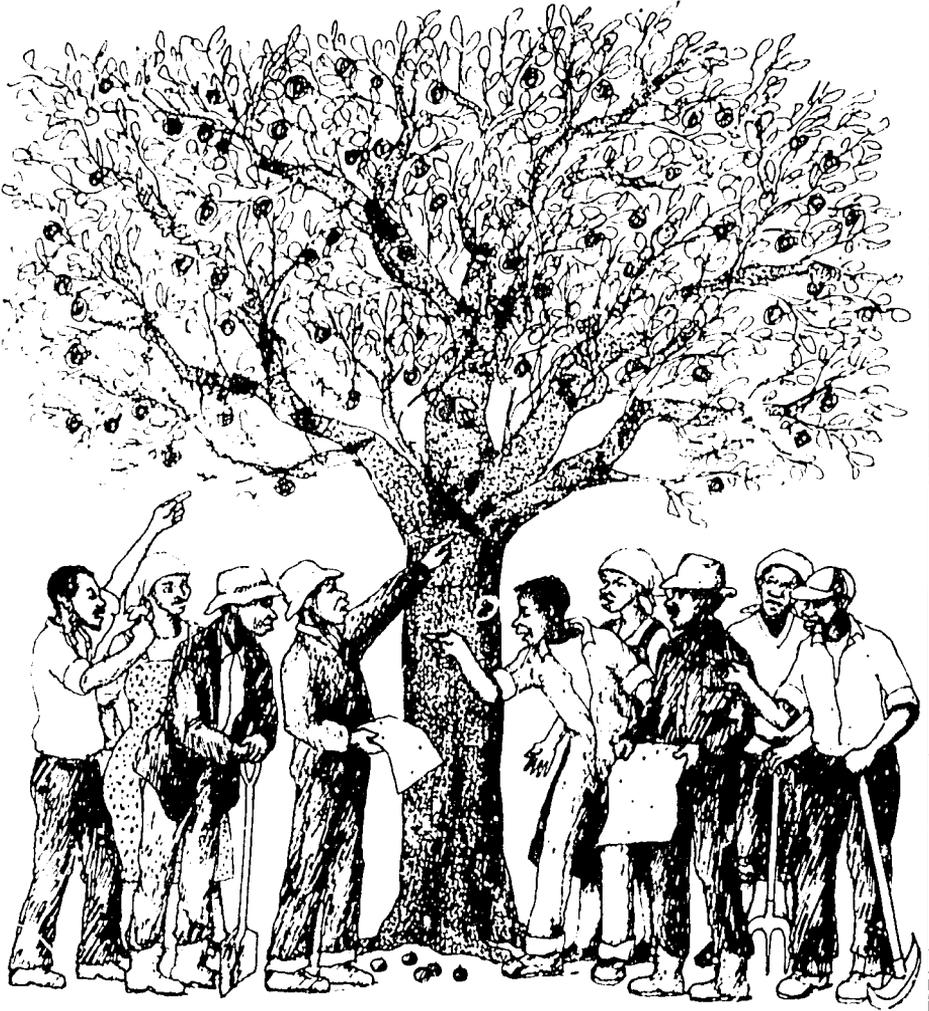


# Trees and Tenure



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An Annotated Bibliography for Agroforesters and Others

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TREES AND TENURE

An Annotated Bibliography for Agroforesters and Others

by

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with

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ICRAF

INTERNATIONAL COUNCIL FOR  
RESEARCH IN AGROFORESTRY  
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## FOREWORD

The practitioners of agroforestry, because they work with peasant cultivators operating under traditional tenure systems--rather than expelling them to plant trees--have a special need to understand those systems. The Land Tenure Center (LTC) and the International Council for Research in Agro-Forestry (ICRAF) in 1982 agreed to seek opportunities to collaborate. This bibliography represents the first fruits of that collaboration. The idea of an annotated bibliography originated in discussions in Nairobi that year. It was agreed that ICRAF would employ a researcher to work with its library and other resources in Nairobi, while an LTC researcher would begin work in Madison. The manuscript would be prepared by LTC and published by ICRAF. Now, after two years of remarkably cordial collaboration, LTC and ICRAF take pleasure in presenting what we believe is a very useful bibliography.

The bulk of the work has been done by Professor Louise Fortmann, now with the Department of Forestry and Natural Resources at the University of California-Berkeley, who handled the Nairobi end, and Professor James Riddell of the Anthropology Department, University of Wisconsin, assisted by Research Assistants Alexis Fraser, Natalia Garcia-Pardo and Steve Brick, at the Madison end. Several others contributed to the annotation of the works covered here, and these have all been named on the cover. A number of ICRAF staffers also deserve mention: John Raintree, Erik Fernandes, Dirk Hoekstra, Peter Huxley, Stephen Okemo, Patrick Robinson, Diane Rocheleau, Lucille Temba, and Peter Wood. At LTC, thanks are due to Marion Brown, Jane Knowles, David Stanfield, and in particular: Beverly Phillips of the LTC Library; Patty Grubb, who typed this manuscript and saw it through numerous revisions; and Steve Brick, who, in addition to contributing a number of annotations, revised and finalized the indexing for the volume. Finally, we are grateful for such contributions in the form of additional sources and/or comments on a 1983 draft from James Anderson, Gerald Berreman, Elizabeth Colson, Nick Menzies, and Jeff Romm at the University of California-Berkeley; Andrea Siemens, Mary Tiffen and Clare Oxby at the Overseas Development Institute in London; Robert Chambers of the Ford Foundation, Delhi; Roger Kirkby of IDRC/Nairobi; Carolyn Barnes of USAID/Nairobi; Stephen Carr, Kevin Cleaver, and Julian Blackwood of the World Bank's Nairobi office; James Thomson of APD in Washington; Richard Tucker at Oakland University; William Burch at the Yale School of Forestry; J. Kathy Parker of the USAID Bureau for Science and Technology; Jefferey Burley of the Commonwealth Forestry Institute, Oxford University; J.E.M. Arnold at FAO; Geoffrey Barnard, Earthscan, London; and J. Weinstock of the East-West Center. Our thanks also goes to many others, too numerous to mention, who have also contributed.

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## TREES AND TENURE : AN INTRODUCTION

by

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Land is not, and cannot be, property in the sense that movable things are property. Every human being born into this planet must live upon the land if he lives at all. The land of any country is really the property of the nation which occupies it; and the tenure of it by individuals is ordered differently in different places, according to the habits of the people and the general convenience.

J.A. Froude, 1875

As the literature abstracted in this volume so clearly points out, a driving force behind many writers' enthusiasm for agroforestry is its promise of a partial solution to problems unprecedented within local economies. In the face of growing landlessness among rural populations over much of the developing world, the use of trees to stabilize steep hillsides, to control erosion, to meet fuelwood needs and so on, means that land tenure decisions must be made on who gets access to the improved resources and on what terms.

Farmers everywhere are reported to be destroying woody plant and tree resources in the search for land. There is also ample documentation that farmers participating in taungya, afforestation and woodlot projects are uprooting or burning the very trees they have planted in order to secure their tenure for another cycle of planting and weeding. Short of placing the proverbial policeman to guard each tree, new institutional arrangements will have to be created. This should be one of the roles of almost any agroforestry

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project. Among the most important institutional arrangements are land tenure arrangements. This introduction attempts very briefly to statesome important dimensions of the relationship between tenure and trees and the implications of this relationship for sound project planning.

#### A. DIMENSIONS OF LAND TENURE AND TREES

We have all grown up with trees and within a land tenure system, and our non-technical appreciation of either is largely culturally determined. However, the agrotorester knows as a specialist that each ecological situation calls for modification in tree selection, planting, weeding, spacing and so forth, and that no one tree/crop mix will work everywhere. It is just the same with social systems and their arrangements concerning who has access to which parcels of land, for how long and for which purposes. This collection of practices, rules and social and institutional relationships are also specific to each socio-cultural environment. As so many of the studies we have annotated point out, an otherwise technically sound agrotorestry or forestry project can fail because it is viewed as a threat to existing land tenure rights and responsibilities.

Land tenure, derived from the Latin tenere (to hold), refers to the possession or holding of the many rights associated with each parcel of land. We commonly refer to these rights associated with a parcel of land as a bundle that can be broken up, redivided, passed on to others and so forth. Some will be held by individuals, some by groups and others by political entities. For any land tenure system, each of the rights in the bundle will have at least three dimensions: people, time and space. We will examine each of these in turn and their relationship to trees.

##### People

No one anywhere ever owns land in some totally exclusive way. Others, and the community, always have rights that impinge to some degree on land use. Even where individual rights are most strongly developed, the society normally reserves to itself the right to take land for roads, and one cannot use one's land in such a way that it unfairly decreases the utility or value of a neighbor's land. A person whose orchard, ornamental or timber trees are

diseased can be made to destroy them if they pose a danger to the trees of others. Indeed, this right of intervention is often most developed where concepts of private property are the strongest.

The rights that make up the bundle are the result of human interaction. They are an expression of social relationships and the expected behavior in others in response to actions I take vis-a-vis a piece of ground. If a forestry or agroforestry plan unwittingly increases the ambiguity of my relationships with others over that parcel of earth I depend on, the chances of my cooperation decrease in direct proportion to the insecurity created.

#### Time

The forester-planner often finds that his/her most complex land tenure problems are long-term problems. Since land survives any holder of rights in land, all social systems have mechanisms for the transfer of rights and for determining how long these rights last. Trees by their relatively slow maturation in comparison to crops and animals involve, if they are purposefully planted, the intention of possessing the land under the trees for an extended period.

For many parts of Africa and Asia, the community member who plants cash crop trees such as rubber, cocoa or coffee on communal land, has effectively excluded all the other right holders from using "their" land for most other uses normal to their society. If an outsider plants trees, the land may effectively pass to his or her kinship group. How much more promising is the prospect when the Forestry Department borrows land from the local community to plant trees? People have learned that where trees are concerned, what started out as a temporary transfer can all too easily become a long-term one.

#### Space

Each right in the bundle also defines just what are the spatial dimensions associated with use. The existing rights to space, however, can be quite complicated. What we find reported in the literature is that the same space is used for different purposes by different people at different times. The gum arabic grove is a good example. Herders bring their animals into the groves to feed on the ground cover and the new seedlings and lower branches. Local farmers come to collect dead fall for firewood. Merchants purchase collection rights to the gum from the tree owners. The land itself upon which

the trees grow is most often part of a larger social group's communal holdings. In all likelihood, each of these users will seek to maintain their rights. As a general rule, the greater the alteration of the use of the land, the more people will have to be involved in acceptance of the idea.

#### TRANSFER

Each land tenure right, with its human, time and spatial dimensions, has an exchange value in the society. The majority of land tenure discussion and litigation in any society concerns the nature of the transfer of rights between persons or groups, just what is transferred, and to which kinds of people transfers may take place.

Different societies see the legitimate purposes of transfers quite differently and set different limits upon transfers. In a classic statement of an African perspective, an Oil Rivers Chief explained that "land belongs to a vast family, the ancestors, the living and the yet to be born." What the chief's statement implies is that one can only transfer a piece of land for a relatively short period of time. Hence, leasing, borrowing, pledging and similar arrangements are common under communal tenure systems. A person cannot, however, alienate the land permanently to a non-kinsman because of the impossibility of getting all those who hold rights in it together for the sale.

#### TENURE CHANGE

Because tenure rules are the result of existing social relations they are always dynamic. As social realities change, so do the interpretations of existing tenure rules, and new rules are created. Throughout the developing world there are two countervailing trends evident. In terms of production decisions, tenure is becoming more individualized. On the other hand, new governmental institutions both at local and national levels are showing themselves increasingly willing to assume tenurial roles in order to stimulate resource development, protect natural resources such as forests, or to stimulate regional development by changing the use of land. Pure tenure types, such as freehold private tenure at one end of a continuum or strictly communal tenure at the other end, hardly exist today (and in fact rarely existed in the past). Rather, it is the case everywhere that tenure forms are mixed. In almost all communal tenure regions, one finds individual and family land holdings and land transfers. Where on the other hand private tenure has

the full backing of law and policy, traditional communal forms persist in actual use and transfer practices.

#### TREES CREATE TENURE

While tenure systems may hamper or prevent tree planting, it is equally important to recognize that the successful planting of trees may lead to tenure change. One aspect of agroforestry is to change the productivity of the following cycle and the length of time soils remain productive. Because substituting planted for wild trees can add a time dimension unprecedented in the local concepts of land use, they can, once yielding economic return, produce a new tenure arrangement. In cocoa, rubber, palm, clove, etc. growing areas, individuals or families are now making tenure decisions that rested with a much larger communal land holding group a short time ago. In the indexing, we have referred to this as a process of trees creating tenure.

#### TREE TENURE

Finally, it is important that Westerners approaching tree and tenure issues in the Third World divest themselves of the "fixture presumption" of Western law: the presumption that a tree belongs to the owner of the land on which it stands (of which it is a "fixture"). Some other cultures share this presumption but many do not. In the northern Sudan, for instance, a tree and its fruits may belong in shares to the owner of the land, the person who provided the seedling, and the owner of the water wheel which irrigates the land. Very diverse arrangements with respect to rights in trees are common and obviously of very immediate relevance to those deciding whether or not to plant trees.

#### B. TENURE AND THE PLANNING OF AGROFORESTRY PROJECTS

All agroforestry projects require the use of land, and so are affected by the rules of land and tree tenure. Some project designers may find the tenure system for their site described in full detail in one or more of the works annotated here. Few will be so lucky. Instead they will have to analyze the bundle of rights discussed above for themselves. The preceding sections introduced a number of conceptual tools. In this section an attempt is made

to set out some of the important questions which a project planner should ask, and then indicate how such an analysis can be used in project design.

### CRITICAL INQUIRIES

Given the multiplicity of conflicting claims that are found attached to the land it is imperative for the planner seeking change to find out at which levels the control of land allocation is lodged. A formal legal approach is inadequate: in much of the Third World the state has exercised its sovereign power and has laid claim to vast portions of the nation's land, but does not actually make any day to day determinations as to its use. Land that is allocated to projects is often actually already possessed by others and has been since time immemorial. Though the state may "own" the land, tenure change has to be renegotiated with the local community, the kinship groups and the individual farmers.

We need to find out whose rights are added to or detracted from by planting trees. What, for example, does the person who previously had rights of trespass and wood gathering on a parcel get in exchange when good management practices require more restrictive access? Unless there is an acceptable exchange when these rights are extinguished, persons in this category may be less receptive to ideas that have long-term advantages. Projects must determine to whom those advantages will accrue and arrange careful tradeoffs when the distribution of advantages of use of land is altered by the introduction of tree crops.

Whenever an agroforestry project is being considered, the following question should be asked: Who has what rights to what land and to what trees? In order to get useful answers to this question, we must break it into its constituent parts: who, rights in trees, land tenure systems and kind of tree.

There are five general types of Who:

1. The State.
2. Residents of a defined geographical area--a village, for example.
3. Kin groups--clans, tribes, families.
4. Non-kin organizations--corporations, religious groups, etc.
5. Individuals--who must be differentiated into male and female and sometimes class.

To give some general examples, women and men often have different rights to land or to use trees. In Pakistan, Hindus and Moslems have different rights to collect fuel. In West Africa, "strangers" have reduced rights to land and trees. "Who," then, is a critical question. Care must be taken in project design not to inadvertently remove rights from someone who has them. Care is also required if new rights are to be created.

There are three general types of Rights in Trees:

1. Creation - in this case, the right to plant trees.
2. Disposal - which has four constituent parts:
  - a. the right to destroy--uprooting or chopping down individual trees or the right to clear a section of forest;
  - b. the right to lend;
  - c. the right to lease, mortgage or pledge;
  - d. the right to sell.
3. Use - which has four constituent parts:
  - a. gathering rights--that is, the right to gather or lop dead branches for fuelwood, etc., or to gather things growing on a tree such as fungus or insects, or to gather tree products from under the tree, such as pine needles or fallen fruit;
  - b. use of the standing tree such as hanging honey barrels in it;
  - c. cutting part or all of a living tree as for building poles;
  - d. harvesting produce.

There are three general types of Land Tenure, and the rules for what may be done with trees may depend on what kind of land (from a tenure viewpoint) they are growing on. In very general terms, these are:

1. Communal land on which individuals may have usufruct or use rights on a specific portion. Some of this land may be left unused in fallow in order to allow it to rest. Some may be held as a commons where everyone has use rights other than cultivation.
2. Freehold land over which individuals have relatively exclusive power and thus relatively greater freedom with respect to land use decisions.
3. State land which in the case of forest land may either be some sort of forest reserve or land under a taungya system, in which people are

given the right to cultivate on forest land in return for planting and caring for young trees.

Trees must be categorized on three dimensions:

1. What is the origin of the tree: wild or planted?
2. Is the encompassing economic system subsistence or commercial?
3. What is the tree's function?
  - a. food
  - b. fodder
  - c. fuelwood
  - d. construction uses and fiber
  - e. other product uses--medicine, latex, toothbrushes, etc.
  - f. service function--nitrogen fixing, shade, soil conservation, micro-climate amelioration.

This provides a static picture which is useful for clarifying the general tenure picture. But it is essential to remember that land and tree tenure (as practiced, not as reified in rules) change in response to changes in population pressure, economics, and land use among others.

A change from subsistence farming or gathering to commercial use (such as is occurring in East Kalimantan and the hills of Thailand and the Philippines) may cause a shift in land tenure patterns and rights to trees. Similarly, commercialization may change the value of land and trees, and hence the rights held in these resources. Increasing landlessness may put increasing pressure on systems of borrowing, sharing and gathering rights, and reduction of fallow periods may take place in production systems under such pressure.

In short, when the social relations governing any one part of the production system change, for whatever reason, one should look for possible changes in other parts of that system, including the land and tree tenure systems.

#### HOW TO USE THIS INFORMATION IN PROJECT DESIGN

To utilize this information in project design, it is necessary to determine what systems of land tenure are practiced on the project site. It may well be a mix of tenure types--land might be held both privately and communally in the same area. Then for each functioning tenure system, the

trees with which the project is concerned can be fitted into the following chart.

It is necessary to complete the chart for all types of land tenure as the rules may differ depending on whether the tree is growing on private, communal, or publicly owned land. The rules for each use must be recorded since the rules covering the use of a tree for commercial timber are likely to be different (often more restrictive) than those covering its use for subsistence fuelwood. Similarly the rules for wild and planted trees and subsistence and commercial uses frequently differ.

<u>FUNCTION</u>	<u>WILD</u>		<u>PLANTED</u>	
	Subsistence	Commercial	Subsistence	Commercial
Food				
Fodder				
Fuelwood				
Building Materials				
Other Products				
Service Function				

Once one has identified who has what rights to what land and what trees and any changes taking place in the system, it is possible to identify the strengths and weaknesses of the project (from a tenure standpoint) by asking the following questions:

1. Will certain segments of the population lose rights as a result of this project? For example: Will gathering rights suffer? Will borrowers lose the ability to get access to land which is put under trees?
2. Will factors other than technical benefits encourage the project? For example: Will people use tree planting as a means of legitimizing their somewhat dubious claims of land? Will it be used to seize the land?
3. Will the project be rejected on grounds of tenure? For example: Will women's groups be prevented from taking up agroforestry because they might

gain title to land in that way? Will Government tree planting projects be viewed as a devious means by which Government intends to seize land? Will laws restricting the use of trees on private land discourage tree growing? Will past events--Government land seizures of forest land, seizures of economically profitable land by more powerful groups--lead to resistance of improvement of land through agroforestry projects?

4. Will certain segments of the population be unable to participate because of tenure and tree property rules? For example: Borrowers and leaseholders may not be allowed to plant trees. Women may not be allowed to plant trees.

5. Are there other complicating factors? For example: Will landless cultivators destroy trees in order to keep possession of their taungya land? Are subsistence holdings so small that there is no room for introduction of tree crops? Is seemingly waste land actually used for other important production purposes? (For example, in some places women have the right to plant their own crops in the space between the men's crops where the trees of an alley cropping system might go.)

It is important to remember that in many societies, the rules governing use of natural resources including land and trees are part of an encompassing network of rights and obligations. This network is very important because it provides the individual with a kind of security in times of need. While such systems are adaptable in the long run, in the short run, which is the life of most projects, it may be necessary to adapt the technical requirements of the project to the existing system of tenure and property relations. Failure to take tenure considerations into account may result in a mysteriously high mortality rate of young trees, failure to adopt the innovation at all, or an enthusiastic response which may indicate that the project is being used for agendas (such as land-grabbing) other than those of project planners.

It reflects the current state of understanding that this introduction is framed primarily in cautionary terms, intended to direct attention to and increase awareness of issues which are raised in projects by intimate tree and tenure relationships. There are no nostrums, no pat solutions in this area, but we are not without substantial experiences. This bibliography seeks to pull together the sum of what we now know. The need to move beyond the many

micro-studies to more effective generalization will be obvious to the reader. We have also been anxious to permit the identification of gaps in research and to provide a basis for formulation of research priorities for the future. The International Council for Research in Agroforestry and the Land Tenure Center have planned and are seeking funding for a research priorities identification workshop in the second quarter of 1985, and we hope this bibliography can serve as a useful source for those involved.

The annotations which follow should be used with a certain amount of caution. Many are from dated references. Whenever possible, the date of field work has been included. Where it has not been, it is wise to remember that the research may antedate publication by a large number of years. Some of the information was collected by amateur social scientists (colonial officers and the like) whose enthusiasm sometimes exceeded their competence. Thus, the existing information should serve to indicate the kinds of tree and land tenure arrangements which might be expected to be found. Nothing, however, can replace careful research in the present.

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**GENERAL**

1. Aieyoju, S. Kolade

"Agr.-Forestry and Forest Laws, Policies and Customs." In Agro-Forestry in the African Humid Tropics, ed. L.H. MacDonald, pp. 17-21. Tokyo: United Nations University, 1981.

In those few places where there is forestry legislation in tropical countries, it is based on the belief that a large portion of the land should be secured for forestry management on the basis of monoculture. The taungya system is more frequently found in anglophone countries. The laws that enforce this system favor the forest service owner at the expense of the cultivators. Present forest laws tend to leave villagers in doubt whether any wood they might produce will belong to them. The author recommends rescinding laws compelling farmers to take care of trees that ultimately belong to the government. Full ownership of trees should also be vested in those who own the land. A village wood lot project in Lesotho is described as being successful because the fuelwood needs of the community were met at subsidized prices before any wood was sold to outsiders. Twenty percent of the revenues were set aside for local development. (ICRAF)

2. Adeyoju, S. Kolade

"The Future of Tropical Agroforestry Systems." Commonwealth Forestry Review 59 (1980), 155-161.

The author argues that agriculture and forestry are naturally compatible. Agroforestry systems increase land values and help landless farmers by stimulating more intensive land management. Originally written for the 11th Commonwealth Forestry Conference (Trinidad, September 1980).

3. Adeyoju, S.K.

"Land Use and Tenure in the Tropics, Where Conventional Concepts Do Not Apply." Unasylva 28 (1976), 26-47.

Land tenure in tropical countries consists of the following components: a concept of land, a mode of correlating people with their environment, a social system with spatial dimensions, and the economic status of local inhabitants. There are nine types of tree and forest tenure: state forests/forest reserves; communal/collective ownership; protection/protected forests; classified trees; private forestland ownership; government ownership of reclamation schemes; timber utilization projects; purchase of timber rights; and rights of usage. Foresters must leave behind the view that forestry begins and ends with tree-raising activities in forest reserves. (ICRAF)

4. Agarwal, Bina

The Woodfuel Problem and the Diffusion of Rural Innovations. Sussex: Tropical Products Institute, Science Policy Research Unit, University of Sussex, 1980.

The author claims that the maldistribution of land is directly responsible for deforestation. This distribution "affects both the absolute availability of wood and its relative distribution" (p. 21). Available from the publisher.

5. Arnold, J.E.M.

Wood Energy and Rural Communities. Rome: Food and Agriculture Organization, 1978.

Land ownership and tenure patterns and land use practices may not allow or encourage the setting aside of land for growing fuelwood. (ICRAF)

6. Barnett, Andrew; Bell, Martin; and Hoffman, Kurt  
Rural Energy and the Third World. Oxford: Pergamon Press, 1982.

Deforestation has many possible causes. But even if the use of wood for fuel is a cause, it may be the last desperate act of people who are denied any alternative by the structure of their society which provides unequal access to land, to trees, to alternative sources of energy. Includes an annotated bibliography on social science research relating to rural energy technology.

7. Ben Salem, B. and van Nao, Tuan  
"Fuelwood Production in Traditional Farming Systems." Unasylva 33 (1981): 13-18.

Trees or shrubs cannot be introduced where people depend on small land holdings for food. (ICRAF)

8. Blair, Harry, ed.  
Report on Community Forestry Workshop. Washington, DC: United States Agency for International Development, Bureau for Science and Technology, Office of Multisectoral Development, Regional and Rural Development Division, 1982.

Discusses project design and issues to be addressed in social forestry, including some issues on the effect of land tenure--who benefits and how does the land tenure system constrain choices?

9. Budowski, Gerardo  
"Applicability of Agroforestry Systems" in International Workshop on Agroforestry in the African Humid Tropics, Ibadan, Nigeria, 1981.

An in-depth discussion of the advantages and disadvantages of agroforestry in relation to monoculture, especially in the humid tropics. Agroforestry is considered a desirable improvement over land-use systems that are degrading under the pressure of increased population densities (such as the various forms of shifting cultivation in the humid tropics and extensive cultivation in the American tropics), when the economic and nutritional output from the land can be substantially increased to meet demands of increasing population and socio-economic development. (LAC)

The author emphasizes that, as a land-use technique, agroforestry does not have to be restricted to the rural poor and/or marginal lands, but that it can be highly productive for small or large tenant enterprises. The present frequent restriction of agroforestry practices to the rural poor is considered a disadvantage, since it precludes the adaptation of improved agronomic practices which could stimulate farmers to abandon their present socio-economic status of poverty and subsistence.

As an advantage related to land tenure, the author points out that trees can be used to mark property boundaries and, thus, constitute a safeguard device against land usurpation.

10. Burley, Jeffrey  
Obstacles to Tree Planting in Arid and Semi-Arid Lands: Comparative Case Studies From India and Kenya. Tokyo: United Nations University, 1982.

In Rajasthan, India, land use was intensified by land reform. An important ecological consequence of the reform has been the distribution and subsequent bringing into production of submarginal lands suitable primarily for limited grazing. Further ecological consequences derived from reforms in tenancy and other exploitative arrangements. The abolition of high rents, landlord-imposed animal grazing fines and taxes, periodic gifts to the landlord, and similar exploitative practices has lowered the costs of both

farming and grazing land use. Since prices went up at the same time, the response was expanded production.

In the semi-arid areas of Kenya where individual land titles have been given, there has already been a noticeable increase in tree planting, as landowners wish to secure for themselves an assured supply of fuelwood and building poles. Characteristically, the more arid zones have communal land tenure and nomadism while the less arid areas have individual tenure and sedentary farming. The actions needed to encourage tree planting vary from the village community plantation on communal land to the individual farmer's plantation of single trees or rows on his land boundary. Different credit and technical facilities are needed for these different systems. No individuals and few communities would consider planting a long-term crop on land for which they feel no immediate responsibility and to which they do not return for long periods. (ICRAF)

11. Chakroff, R. Paul

"Preliminary Checklist of Socioeconomic Issues Related to Technical and Biological Components of Social Forestry Projects." In Report on Community Forestry Workshop, ed. Harry Blair, Washington, DC: USAID, 1982.

Lists a set of questions to be considered in project design, including whose use rights will be affected and who owns the land.

12. Combe, Jean

"Agroforestry Techniques in Tropical Countries: Potential and Limitations." Agroforestry Systems 1 (1982): 13-27.

The author provides a general description of agroforestry and several ongoing systems currently in existence. He also introduces the idea of productive versus non-productive tree uses.

13. Eckholm, Erik P.

Losing Ground: Environmental Stress and World Food Prospects. New York: W.W. Norton and Company, 1976.

This survey of global deforestation is a classic in the field. It briefly recounts the global history of deforestation, attributing the two major causes to land clearing for agriculture and fuel gathering. The case of land tenure in El Salvador is used to show "suicidal uses of land" linked to maldistribution of land holdings. Includes good bibliography. (STEENBOCK)

14. Enabor, E.E.; Okojie, J.A.; and Verinumbe, I.

"Taungya Systems: Socio-Economic Prospects and Limitations." In Agro-Forestry in the African Humid Tropics, ed. L.H. MacDonald, pp. 59-64. Tokyo: United Nations University, 1981.

Land hunger is a precondition for taungya. In general, where arable land is too scarce to permit agriculture or forestry as single land uses, taungya will develop. (ICRAF)

15. Filius, A.M.

"Economic Aspects of Agroforestry." Agroforestry Systems 1 (1982): 29-39.

The author develops general economic maximizing models for decision-making on how much land is to be devoted to production v. conservation, and forestry v. cultivation. The basic land use model is that developed by Ostrom for grassland management. The author argues that land tenure is a major issue in agroforestry. Because of the time span involved in growing trees, agroforestry is not easily practiced on leased or insecurely held land.

16. Foley, Gerald, and Barnard, Geoffrey  
Farm and Community Forestry. Energy Information Programme, Technical Report No. 3. London: Earthscan, 1984.

[Authors unable to obtain a copy for annotation.]

17. Food and Agriculture Organization  
Forestry for Local Community Development, (FO/MISC/77/22 W/K9505), 1977.

There are four categories of forest tenure: communal forest land, private forest land, state forest land, and undefined forest ownership, which in practice is land held in trust by the national government. Four possibilities for future action are creation or expansion of community forests, promotion of private woodlots, more precise definition of existing customary rights, and the introduction of medium and long term leasing systems to set aside a certain portion of state owned forest land for the exclusive or restricted use of local communities. (ICRAF)

18. Food and Agriculture Organization  
Implementing Forest Programmes for Local Community Development (FRC/4-0), 1978.

To encourage greater local involvement in the management and utilization of forests, the following are suggested: creation or expansion of community forests sufficient to cater to the needs of the community; promotion of private woodlots; a more precise definition of existing customary rights to allow for the protection of certain tree or animal species as necessary, or as the restriction of collection of certain forest produce to ensure future availability; and introduction of leasing systems to set aside portions of state-owned land for community use. The legal status of forest land will be of concern to any program for community forestry. Any plantation scheme will require a reasonably long-term tenure; community forests may need the status of permanent forest reserves. (ICRAF)

19. Food and Agriculture Organization  
Forest Utilization Contracts on Public Land, Schmithusen, Franz (FAO Forestry Paper, no. 1), 1977.

This is the seminal work of the 1970s on forestry contracts in the Third World. Land tenure in less developed countries is broken into three categories: (1) English Law; much of Africa and parts of Asia; forests are owned by the crown; (2) French Law; northern and central Africa and parts of Asia; forests are state owned, with provisions for traditional uses; and (3) Iberian Law; Latin America; forests are declared uncultivated and, therefore, state owned. While land tenure is not the central theme of this work, customary rights are briefly categorized in a useful manner.

20. Francois, T.  
Grazing and Forest Economy. Rome: Food and Agriculture Organization, 1953.

Ill-defined or undefined ownership or use rights are very harmful to planning. Large private estates used for grazing may be an obstacle to reforestation. Private collective ownership is feasible. Misuse is usually aggravated where communally owned pasture zones are found side by side with small private pastures owned by members of the community. The private pastures are then protected. No preference can be given to any particular system of ownership without first taking into account the economic and social conditions prevailing in each country. (ICRAF)

21. Freeman, Peter H.

Forestry in Development Assistance. Washington, DC: Office of Science and Technology, USAID, 1979.

Secure land tenure is an indispensable prerequisite to forestry done in the context of rural development. Since insecure or inequitable land tenure is a common constraint in the rural areas of LDCs, special attention must be paid to this feature of project feasibility.

22. Gourou, Pierre

The Tropical World. New York: Wiley, 1966.

Two chapters are devoted to swidden as the "characteristic agriculture" of the tropics and its techniques and consequences, with maps and illustrations showing the distribution and effect of swidden on the landscape. The author contends that land improvement schemes that fail to take into account native rights to fallow and reserve forest are a violation of those rights. There is a useful summary of Mayan swiddening and its possible role in the puzzling disappearance of that civilization.

23. Hammer, Turi

Socio-Economic Implications of Fuelwood Development in Poor Countries. DERAP Working Paper no. A288. Bergen, Norway; Chr. Michelsen Institute, 1983.

Farmers who own their land or have long-term land tenure will be more inclined to maintain soil fertility and to tend to trees than those who cultivate under short-term leases. Joint cultivation on land held in common may lead to conflicting interests between individuals and the community at large. Communal land or waste land may often provide the basis for fuelwood development. Available land for fuelwood depends on the existing land rights system in the area, but also on the size of the individual land holdings. Farmers with little land, needed entirely for growing subsistence crops, may be reluctant to join in activities that necessitate prolonged fallow periods for part of the land. Land availability is also relative in the sense that food and cash crops and grazing animals under certain conditions may have higher return values than fuelwood. (ODI)

24. Herskovits, Melville J.

Economic Anthropology: A Study in Comparative Economics. New York: Alfred Knopf, 1952.

Reviews ethnographic studies which document the ownership of trees as property separate from the land.

25. Hoskins, Marilyn

Rural Women, Forest Outputs and Forestry Projects. Draft. Rome: FAO, 1983.

Privatization of land may result in male title holders only. When such titles replace traditional use rights, women may be disadvantaged, especially female heads of households. Women may also fear that if they have a piece of land or an income generating activity which succeeds, it may be taken over by men. As a general rule, women have less access to permanent rights over land.

26. Hoskins, Marilyn

"Participation in Forestry for Development Enabling Mechanisms." FAO/SIDA Consultation Forestry Administration for Development. Rome: FAO, 1982.

Field experience has shown that it is important that villagers own the trees they plant; that public control may be less effective than local control and that turning village land into public land may not have beneficial effects.

27. King, K.F.S.

Concepts of Agroforestry. Mimeographed.

The system of agri-silviculture has been practiced in the past, mainly in the forest reserves where the farmer had no rights to the land. Land hunger was in most places created by the forest department. Unless a person was destitute (landless and unemployed), there was no incentive to participate in taungya. The system was geared to conditions of land hunger and unemployment which had, in the past, been created by the exploiters. (ICRAF)

28. King, K.F.S.

Agri-Silviculture (The Taungya System). Bulletin, no. 1. Ibadan: Ibadan University Press, 1968.

Land hunger, high unemployment and low standards of living are stimuli for the taungya system in which forest reserves act as land banks. In Sierra Leone the customary law affects the system in that the original land owner is given preference to farm the plantation. This right may be exercised by someone else only after the land owner has rejected the offer to farm the area and has given approval for someone else to do so. Under taungya, rights the shifting cultivator formerly enjoyed through status are not his as a result of contract. (ICRAF)

29. Meek, C.K.

Land Law and Custom in the Colonies. London: Frank Cass, 1949.

Generally, it may be said that as in the case of the land, so with trees--labor creates rights. Thus, while the fruit of wild palm trees may be free to all, restrictions on this freedom appear as soon as the trees are prepared for the tapping of wine. This is a laborious process and the person who carries it out establishes proprietary rights over the tree he has tapped. The person who plants a tree generally has rights to it.

In Fiji, lessees may not cut down trees without the consent of the lessor, nor dispose of by sale or remove any forest produce growing on the land. In many communities, custom forbids a grantee of land to plant any permanent crops such as cocoa, as this would be regarded as an attempt to acquire permanent ownership of the land. In Basutoland (Lesotho), chiefs do not encourage tree planting on arable land, as this would give the appearance of preferring a claim to the land. In Zanzibar, plots of crown land were successfully appropriated by being planted with cloves. In the reserve, land on which mangrove trees grow was wrongly regarded as crown land because of the fact that permits had to be obtained from the government for cutting mangrove poles.

In 1912, the Chief Commissioner of the Ashanti stated "We had to make a rule that when a man had properly planted a cocoa plantation it should be regarded as his own, so as to give him the fruits of his labour." This was the beginning of individual land ownership. Under the Ottoman Land Code on Cyprus, wild trees are inherited with the land, but grafted or planted trees take the land on which they are planted with them. Under Islamic law, trees go with the land but fruit on the trees belongs to the seller unless otherwise specified. In Cyprus, where land and trees are owned by different people, the owner of one would not sell his interest without giving a prior right of purchase to the owner of the other. In Malaysia, most rubber land is inherited by women. In Tonga it is illegal to pledge crops including tree crops. In general, the confusion of separate tree tenure and land tenure is bemoaned because the right of access to separately owned trees leads to conflicts. (MEMORIAL)

30. Noronha, Raymond

"Why is it so Difficult to Grow Firewood?" Unasyiva 33 (1981), 4-12.

For community forestry to succeed, there must be sufficient land, and the area set aside must be big enough to meet the needs of all villagers. Fragmentation of land may not leave enough space for trees. Government must support community forests, since degraded lands are often seen as available for distribution to the poor. In Tanzania, the change from freehold to state land tenure has made farmers skeptical that they will benefit from a tree crop. (ICRAF)

31. Noronha, Raymond, and Lethem, Francis

Traditional Land Tenure and Land Use Systems in the Design of Agr. cultural Projects. World Bank Staff Working Paper, no. 561. Washington, DC: World Bank, 1983.

This report covers basic concepts, an analytical basis for interpreting land tenure and land use systems (existing rights, possession of the land, security of tenure, beneficiaries from the land output) and translating traditional systems into project design. Based primarily on World Bank projects, the index lists tenure problems encountered country by country. (OD1)

32. Noronha, Raymond, and Spears, John S.

"Sociological Variables in Forestry Project Design." In Putting People First: Sociological Variables in Development Projects, ed., Michael Cernea. Baltimore: Johns Hopkins University Press, Forthcoming.

Social forestry differs from conventional forestry in three ways: 1) takes place, generally, in a non-monetized sector of an economy, 2) beneficiaries of a project participate directly, and 3) foresters are required to help people grow trees rather than protect trees from people. The authors discuss the role played by sociologists in social forestry project design, and provide guidelines for planning, implementing and monitoring projects.

Land tenure systems and traditions are among the areas of sociological enquiry identified.

33. Openshaw, K., and Morris, J.

"The Socio-Economics of Agro-Forestry." In International Cooperation in Agro-Forestry: Proceedings of an International Conference, eds. Trevor Chandler and David Spurgeon, pp. 327-351. Nairobi: BSE/ICRAF, 1979.

In Korea, lands being planted remain under private ownership. Owners have the choice of reforesting or of putting the land under Village Forest Association management in return for one-tenth of the proceeds. The village as a whole determines which lands will be forested.

In Tanzania among the Meru, trees are community property except those planted by individuals. Population clustering leads to a fuelwood "sacrifice zone" around each village, although on average over a wider area there are adequate resources for the whole village.

In Africa, communal agroforestry plantings are often located on misused common land. Since this land constitutes the principle resource for poorer households to graze their goats and a few head of cattle, trees planted there are at considerable risk. When land is not individually owned, enforcement costs become prohibitive for some venture that might otherwise offer attractive solutions to land use problems. The authors conclude that communal land tenure can make it uncertain who will benefit from the enterprise. (ICRAF)

34. Plumwood, Val, and Routley, Richard  
"World Rainforest Destruction: The Social Factors." The Ecologist 12  
(1982), 4-22.

In Indonesia timber concessions have been granted to commercial companies on the land which is owned and used by shifting cultivators without regard for their rights or welfare. In addition, the military has seized trees planted by villagers for their own use. The pattern is similar throughout rain forest regions.

35. Regan, Colm  
Colonialism and Deforestation: A Case Study of Ireland. Maynooth,  
Ireland: Department of Geography, St. Patrick's College, 1961.

The deforestation of Ireland resulted from the military security needs of a colonial government, the timber and fuelwood requirements of English industry and shipping, and the avarice of English colonial settlers. Legislation restricting cutting and requiring the replacement of trees was too little, too late and largely unenforced. (ICRAF)

36. Schmithüsen, Franz  
"Recent Trends in Forest Legislation in Developing Countries." In  
Proceedings of XVII International Union of Forest Research Organizations World Congress Kyoto 1981, pp. 317-328. Kyoto: Japanese IUFRO Congress Committee,  
1981.

In this review of forestry legislation in developing countries, Schmithüsen discusses the power of forestry legislation in development. He lists 18 Latin American, 20 African, and 16 Asian and Far Eastern countries that have instituted new or substantially modified forestry laws in the last 20 years. General trends in legislation are summarized. There is specific mention of forestry for local community development and occasional reference to land tenure issues. This is a hard to get publication. Address of publisher is Japanese IUFRO Congress Committee, c/o Forestry and Forest Products Research Institute, P.O. Box 16, Tsukuba Norin Kenkudachinar, Ibaraki 305, Japan. (FOREST PRODUCTS LAB)

37. Schmithüsen, Franz  
An Annotated Bibliography on Forest Legislation in Developing Countries.  
FAO Background Paper, no. 12. Rome: FAO, 1977.

An annotated bibliography containing approximately 245 entries. Arranged by regions, each regional section has annotations for the region as a whole and for individual countries as well. Many entries relate to agro-forestry and land tenure issues.

38. Thiesenhusen, William C.  
Hill Land Farming: An International Dimension. Land Tenure Center  
Research Paper, No. 109. Madison: University of Wisconsin Land Tenure Center,  
1976.

Population pressure against agricultural land resources have reached unprecedented levels. The author argues that the steep hillsides will continue to be used as landless farmers have nowhere else to go. At least part of the solution will be to utilize trees, tenures, etc. to make hillside farming feasible. What is needed is institutional frameworks that make tenure secure for those farmers who invest in tenures, contours and trees. Also, institutions must be created among the farmers themselves to organize and coordinate the work needed. If they undertake the efforts necessary, they must also be the beneficiaries. Also published in proceedings of International Hill Lands Symposium (West Virginia University: October 1976). (ITC)

39. Troup, R.S.  
Colonial Forest Administration. Oxford: Oxford University Press, 1940.

This overview of British colonial forest policy and administration, published in 1940, provides insights into British views of forestry. In relation to land tenure, the author writes that the history of European communal forests should be an example to the colonies. "In Europe, communal forests when properly controlled and managed are of great benefit to local communities . . . but it is found they are subject to overexploitation . . . for which reason they are generally subject to a fairly strict form of state control" (p. 225). A chart of different forms of ownership in all British colonies is given on page 120. Part II of this book deals extensively with forest ownership (approximately 100 pages). (STEENBOCK)

40. United Nations, Environmental Programme, Food and Agriculture Organization  
Tropical Grazing Land Ecosystems (UNESCO), 1979.

Land tenure systems for a series of societies are described. These systems are evolving in complicated ways under the pressures of population increases and changes in the cropping system. (ICRAF)

41. Vergara, Napoleon T.  
"Integral Agroforestry: A Potential Strategy for Stabilizing Shifting Cultivation and Sustaining Productivity of the Natural Environment." Canopy 8 (1987), 9-12.

This is the last of a four-part series in the same journal on the concept of integral agroforestry as a tool for development. Integral agroforestry refers to crops and trees integrated into a single production system as opposed to traditional shifting cultivation or the taungya system in which crops are periodically moved as the forest canopy closes the ground to sunlight. Integral agroforestry leads farmers to seek more permanent kinds of tenure arrangements. Only through governmental willingness to provide assurances of adequate security in land (long-term leases, sale, homesteading) will sustainable productivity of marginal mountainsides be undertaken to help meet the Philippines' rising food needs.

42. Vergara, Napoleon T.  
Integral Agro-Forestry: A Potential Strategy for Stabilizing Shifting Cultivation and Sustaining Productivity of the Natural Environment. Honolulu: East-West Center, 1981.

Integral agroforestry is the simultaneous and continuous integration of forest and food crops. Cyclical agroforestry is the sequential or cyclical relationship between food crops and forest fallow. Taungya consists of simultaneous wood and food crops at the early stage, and pure forest toward the end. The advantage of integral agroforestry is that it promotes tenure. Unlike cyclical agroforestry, which necessitates a transfer when the soil fertility is completely exhausted through a series of too-short fallow cycles, and unlike taungya, which requires periodic relocation of farming activities upon closure of the forest canopy, integral agroforestry's sustained productivity provides the farmers an opportunity to stay permanently on the site. This social advantage is of such great importance to land hungry farmers that it could be the greatest single factor that may induce them to embrace this farming system. There is a need for governments to guarantee farmers' tenure over their farm sites, either through long-term leases or outright land alienation and sale or homestead grants. Only through this assurance of tenure can the sustainable productivity of the land be taken advantage of to fill rising food needs. (ODI)

43. World Bank

Review of Bank Financed Forestry Activity FY 1983. Washington, DC: World Bank, 1983.

There has been a shift in emphasis in rural afforestation towards tree planting by individual farmers on their own homesteads. The incentive of private ownership of trees seems to have been a decisive factor in the willingness of individual families in Sahelian countries to protect trees from livestock. In West Bengal, India, small plots of government-owned wasteland are being allocated to landless families for tree planting. Village-owned wood lots on commons have not been successful on the whole. Uncertain land tenure appears to have an adverse effect on farmers' attitudes towards tree planting. A factor affecting industrial reforestation is the willingness of government to allocate land title to individual tree farmers growing trees as a cash crop.

AFRICA

1. Abrahams, R.G.  
The Peoples of the Greater Unyamwezi, Tanzania. London: International African Institute, 1967.

Trees growing in the bush are said to be the property of the chief, but their use in practice is usually only limited by Forestry Reserve regulations. In most areas, trees planted by a person in his fields and trees that grow there naturally are his property. Trees planted by the previous occupant of the land normally remain the property of the planter, who may dispose of them by gift or sale. This is mainly important in the case of mango or other fruit trees. The right to sell fruit trees in most areas appears to be a fairly recent innovation. Wild fruits, wild honey, gum arabic, and beeswax are free to all except in Usukuma, where strangers must ask headmen for permission to gather honey and beeswax. (Tanzania: MEMORIAL)

2. Adams, Patricia A.  
"Deforestation in Kenya: A Case of "Over-Exploitation" of the Common-Property Resource?" M.A. Thesis. University of Sussex, 1979.

The purpose of this thesis was to test the applicability of the theory of exploitation of the common property resource to the case of deforestation in the Third World using Kenya as an example. It concludes that H.S. Gordon's economic theory of a common-property resource (using fisheries as an example) inadequately describes the economic decision-making process that determines the use of the forest resource for woodfuel in Kenya. Nor does it account for the externality of environmental degradation that results from deforestation. Furthermore, it concludes that the "communal" use of a resource based on a traditional communal social structure does not mean that the resource will be over-exploited as Garrett Hardin described in his classic essay on the tragedy of the commons. A discussion of the role of land tenure in the management of trees and forests is included in this paper and the need for security of land tenure relations is highlighted.

3. Adegboye, R.O.  
"Impact of Land Tenure on Nigerian Forest Ecosystems." In Man and Biosphere Workshop on State of Knowledge on Nigerian Rainforest Ecosystem. Ibadan: University of Nigeria, 1979.

Forest ownership, a right associated with groups, not individuals, is a function of the ownership of the land on which the forest is located. In very rare instances, a tenant may be permitted to grow trees. The forest owning group has the right to products of wild trees. There is neither sale nor purchase of forest lands, but the practice of pledging forests and particular trees is widespread. Individuals may be permitted by their groups to pledge trees planted by or assigned to the individual. The rights of redemption are, however, exercisable by the group if the individual pledgor becomes unable to redeem the pledged forest or trees. Changes in forest rights are being brought about by population pressure, economic exploitation, improved technology and education. (Nigeria; ICRAF)

4. Adegboye, R.O.  
"Land Tenure." In Foodcrops of the Lowland Tropics, eds., C.L.A. Leakey, and J.B. Wills. Oxford: Oxford University Press, 1977.

A brief description of land tenure and tree tenure in Ghana, Nigeria, Senegal and Ivory Coast. (ICRAF)

5. Adeyaju, S.K.  
"Where Forest Resources Improve Agriculture." Nasyilva 27 (1975): 27-29.

The establishment of forest reserves in Nigeria has had some beneficial effects such as encouraging permanent settlement of shifting cultivators. A change in the taungya system has led to cultivators being employed permanently and enjoying the amenities of planned communities. Unstable land tenure presents problems to foresters who must be more than woodcutters. (Nigeria: ICRAF)

6. Ahmed, Abd-al Ghaffar Muhammad  
Shlaykhs and Followers. Khartoum: University of Khartoum Press, 1974.

The major portion of the study is concerned with political changes in the Fudj region of the Sudan. Land tenure is discussed in detail in the context of sedentary versus nomade control and contest for political influence. Trees are covered in Appendix I which presents data on Gum gardens (Acacia verek and Acacia seyal). The gum groves were, at the turn of the century, the second most important source of cash income and were divided between sedentary and nomadic groups. In 1917 the government partitioned the gum trees with the vast majority going to the leading families of the nomades to hold in trusteeship for their followers. The leading families, however, handled them as a form of private property for political influence with the tappers who applied for tapping rights. After giving the garden Shaykh (here, trustee) his dues, at least three men are required for tapping and a camel for transportation. The camel receives a share equal to a man. Non-Rufa'la al-Hoi were often asked to pay twice as much for tapping rights. The more valuable the gum the more the trees are treated as private property. Collected gum is turned over to the garden Shaykh who serves as a middle man between the tappers and the merchants. An example of an annual contract (1939) between the district commissioner and a Shaykh of a gum garden is included. The contract spells out in clear detail the de jure rights the Shaykh has in the trees, which is very different from the de facto situation. (Sudan)

7. Allan, W.  
"Land Holding and Land Usage and the Plateau Tonga of Mazabuka District." In Readings in African Law, v. 1, eds. E. Cotran and N. Rubin, pp. 342-345. London: Frank Cass, 1970.

Anyone anywhere in Zambia could pick wild fruit even in cultivated gardens. Planted trees in old hut sites were identified as belonging to the former site holder. Everyone denied the statement in district records that wild fruit trees near a hut belonged to the hut owner, and that trees within a certain area around a village belonged to the village, and only in unoccupied land distant from a village could anyone pick fruit at will. Extracted from a 1948 publication by the author. (Zambia)

8. Ainy, Susan  
"Sociological and Agricultural Organization in Hill Lands in Kenya." In Hill Lands: Proceedings of an International Symposium, ed. J. Luchok, et. al, pp. 119-126. Morgantown: West Virginia University Books, 1976.

Most larger homesteaders have put part of the land into trees producing wattle and firewood, and have abandoned up to half of the remainder to fallow. (Kenya: ICRAF)

9. Asante, A.K.B.  
"Interests in Land in Customary Law of Ghana--A New Appraisal." In The Yale Law Journal 174: 848-885, 1964.

A 1961 Supreme Court case held that ownership of cocoa farms was to be strictly distinguished from ownership of the land on which they were situated, and that the successor to the land had no automatic claim to such farms where these had been made by another person under a license granted by the decedent.

10. Ay, Peter

"Fuelwood and Charcoal in the West African Forest: Field Research in Western Nigeria." In Rural Energy Systems in the Humid Tropics, eds. W.B. Morgan, R.P. Moss, and G.J.A. Ojo, pp. 26-38. Tokyo: United Nations University, 1978.

In most of the villages around Ibadan, fuelwood for the households is still regarded as free. If it is needed, it can be taken from anywhere, even from the farm of a neighbor provided the land is under fallow. Wood will not be touched if it is already prepared for burning. (Nigeria; ICRAF)

11. Bailey, Ann Patricia

"Land Tenure: Its Sociological Implications With Specific Reference to the Swahili Speaking Peoples of the East African Coast." Master's thesis, University of London, 1965.

Land tenure in the villages is based on descent groups. A man cannot inherit his wife's trees or cultivation rights. In some areas, a person can approach affinal relatives for permission to plant trees on their land. Abandoned bushland returns to the common pool of the village after a certain length of time if it has no trees or houses on it. A stranger may be accepted into the village by payment of a fee, and then will be given seedlings to plant and permission to build a house. If he builds an overly large house or plants trees without permission, he is likely to be the object of sorcery and non-cooperation. No one may sell land or trees without giving the villagers the option of buying.

Land tenure in plantation areas tends to be subject to Islamic law. On the whole, trees rather than land are sold and if a piece of land is sold, its value is measured in the number of trees on it. The distinction between land and trees is difficult to maintain when clove trees are so long lasting (100 years) and grow so thickly on the ground that it is almost impossible to cultivate under them. Thus, on clove land, although primarily trees are sold, the land may be said to go with the trees. Until recently, squatters would plant trees (but not cloves) and have usufruct rights. Changes in regional economic are leading to changes in the tenurial system towards individualization. (Tanzania; UNIVERSITY OF NAIROBI)

12. Baker, D.C.

"Smallholder Farming in Sub-Saharan Africa." In Research on the Rural Economies of Sub-Saharan Africa: A Critical Appraisal, eds. C.K. Eicher and D.C. Baker, pp. 72-133. East Lansing: Michigan State University, 1982.

An overview of land tenure in Africa. The author recommends directing more attention to land tenure because of growing land pressure, emerging land markets and the question of access to land for landless and small farmers in newly independent countries. (ICRAF)

13. Baker, E.C.

Report on Social and Economic Conditions in Tanga Province. Dar es Salaam: Tanganyika Territory, 1934.

The general rules concerning trees are described for six ethnic groups and geographical areas. In general, the trend is toward individualization of tenure as a result of planting economic trees. Strangers allowed the use of land were generally prohibited from planting such trees, as they established the right to the land. (Tanzania; SOAS)

14. Ball, J.B., and Umeh, L.I.

"Development Trends in Taungya Systems of the Moist Lowland Forest of Nigeria Between 1975 and 1980." In Agro-Forestry in the African Humid Tropics, ed. L.H. MacDonald, pp. 72-78. Tokyo: United Nations University, 1981.

Under previous taungya systems, local farmers were recruited by the forestry department to undertake arable farming in allocated areas within a forest reserve. Under departmental taungya, forest laborers who may have no previous farming experience do this. In the past, it was forbidden to grow crops such as cocoa and rubber because they were permanent or semi-permanent crops that competed with the forest crop, and could lead to alienation of the forest reserve if they grew long enough. (Nigeria; ICRAF)

15. Barnes, Carolyn

"The Historical Context of the Fuelwood Situation in Kisii District." In Wood, Energy, and Households: Perspectives on Rural Kenya, eds. Carolyn Barnes and Jean Ensminger, Forthcoming.

The Gsiii refused to set aside land for afforestation under colonial rule, since they feared it implied further seizure of their land. Under communal tenure, one could freely collect and cut wood on one's clan's land. With individualization, households were expected to obtain wood from their own land, or obtain the permission of the land owner. It is perceived that in the future only those with large amounts of land will be able to cut trees. (Kenya; ICRAF)

16. Basden, G.T.

Niger Ibos. London: Frank Cass and Co. Ltd., 1966.

Based on 1936 field work. Tenants could not plant trees on agricultural land.

17. Beattie, J.M.

"The Kibanja System of Land Tenure in Bunyoro, Uganda." In Readings in African Law, eds. E. Cotran and N. Rubin, v. 1, pp. 324-332. London: Frank Cass, 1970.

Extracted from a 1954 publication, the 1933 land registration resulted in holdings that consisted of square miles of territory and prevented the cultivators from obtaining occupancy rights. These rights consist of 1) undisturbed occupancy as long as the land is occupied and cultivated, 2) absolute ownership of buildings and trees and crops planted, and 3) the land is inheritable. If the land is left uncultivated, a claim can be staked by planting a few permanent trees. The Kibanja holder has the right to all timber on the land. (Uganda)

18. Beetsi-Enchill, Kwanaena

Ghana Land Laws. Lagos: African Universities Press, 1964.

Forest Reserves can consist of state, stool or private lands. The status of Forest Reserve does not alter the ownership of the land. The use of these reserves is prohibited, or permitted only under special permit. (Ghana)

19. Berry, Sara S.

Cocoa, Custom, and Socio-Economic Change in Rural West Nigeria. Oxford: Clarendon Press, 1975.

The socio-economic impact of the introduction and spread of cocoa farming in Western Nigeria is traced from the late 19th century to the present. Chapter IV treats specifically changing land tenure patterns. Although slight

regional variations were observed, generally, cocoa farming led to a commercialization of land holdings. Traditionally, lands were held by patrilineal groups, and could not be passed on without the consent of the lineage. Customary law separates land from improvements made on the land, trees among them. The one who plants trees is usually the owner of the trees, irrespective of who owns the land. As cocoa farming grew in importance, it became increasingly difficult to separate land ownership from tree ownership, in some cases tree ownership evolved into land ownership, indicating a shift from traditional patterns.

20. Bohannon, Paul, and Bohannon, Laura  
Tiv Economy. London: Longmans, 1968.

Land rights are the birthright of every man, constituting a spatial aspect of agnatic filiation. A man has rights to specific land, as well as specific cultivated land, in territory occupied by his kin. These rights never lapse, but can be exercised only when he is in residence. Women's rights depend on marriage and residence. A woman has rights to farm in the territory of her husband's kin as long as she is in residence there. She has rights to sufficient land to feed herself and her family in the territory of her husband's kin as long as she is married to him. Unmarried women or those who live in their natal homes work on the farms of their mothers and only their sons or brothers have any obligation to them. Land is neither rented nor sold.

Normally the fruit of a tree is harvested by the women (and her children and attached wives) on whose farm area it is growing, but in the south, fruit from trees growing on fallow land may be gathered by any person who lives in the compound whose members last farmed there. Harvesting the fruit of trees growing near disputed boundaries may cause conflicts, as it is taken as a sign of an attempt to establish a claim to the land. Wars have been caused by such disputes. Settlements are generally based on distribution of the fruit rather than the right to the land. Rights to economic trees such as locust beans and gbaiye, which are not planted, are defended in the same way as rights to fields. Only lime, orange, and pawpaw trees are planted, and then only in kitchen gardens. Firewood can be gathered any place, but once a person has felled a tree or has begun to take wood from a dead tree, others should not take wood from it. (Nigeria; MEMORIAL)

21. Boudet, Georges  
"Quelques observations sur les fluctuations du couvert végétal sahélien au Gourma Maliou et leurs conséquences pour une stratégie de gestion sylva-pastorale." Bois et Forêts des tropiques 184 (1979), 31-44.

Erosion is the dynamic factor in the ecology of the Sahel. During a four-year study, it was found that woody plants regenerate on lower land, while upper lands have become increasingly bare. Changes in climate like droughts or inhuman action accelerate or decrease the effect of erosion. The author proposes five principles of land tenure and management to aid the regenerative cycle: 1) pasture rotation adapted to animal type; 2) reduction in animal numbers on any given pasture to the carrying capacity of the range; 3) maintaining mobility of livestock rangers; 4) granting tenure in water, salt cures, etc. for established groups of range uses; and 5) modest levels of investment support. (Mali; FOREST PRODUCTS)

22. Brain, James  
"The Uluguru Land Usage Scheme: Success and Failure." Journal of Developing Areas (1980), 175-190.

Land is held by the sub-clan. Women have the same rights to land as men. While individuals had a fair degree of freedom about the crops they grew, permission always had to be sought from the land warden. No objection was raised to annual crops, but strong objections were made to permanent crops such as coffee, bananas or trees. This was because while the land belonged to

the sub-clan, the crop belonged to the planter. If one planted a permanent crop, then land passed out of control of the sub-clan and into the control of the planter of the permanent crop, giving effective freehold to the planter and his or her heirs. Under the terracing scheme, mass turnouts for tree planting were arranged. Since the people suspected that this was a device for the government to establish claim over their land, none of the seedlings survived. (Tanzania: ICRAF)

24. Brokensha, D., and Glazier, J.

"Land Reform Among the Mbere of Central Kenya." Africa 43 (1973): 182-206.

A distinction is made between rights in land and rights in trees, and in the sale of land any valuable trees should be paid for in honey. This is a logical concomitant of the earlier system of redeemable land transfer. Any individual temporarily relinquishing his land would not wish to find it denuded of trees upon redemption unless he had been compensated. The distinction between control of trees and land confuses the issue of land ownership. In most land cases, litigants cite as proof of land ownership their repeated cutting of trees on the land without interference or protest from anyone. Permanent trees should not be grown by a tenant, since they may be used to prove land ownership. The author predicts that with land registration, beekeeping and collecting firewood and building poles will be restricted. (Kenya: SOAS)

25. Brokensha, D., and Njeru, E.H.N.

"Some Consequences of Land Adjudication in Mbere Division." Working Paper, no. 320. Nairobi: University of Nairobi, 1977.

All respondents felt strongly that adjudication of land resulted in great inequality in land distribution. More than half said that the beneficiaries of the process were the rich, leaders and other influential people. Before adjudication, most trees were common property. Now, every single plant has an owner who protects his rights. In some places a person may collect firewood from mother's land, provided that permission is asked and the firewood is not resold. In other areas, owners discourage any intrusion on their plots. Fruit, except for Tamarindus indica, may be gathered. Sacred groves are disappearing. (Kenya: IDS)

26. Brokensha, David, and Riley, Bernard

"Forest, Foraging, Fences and Fuel in a Marginal Area of Kenya." In USAID Africa Bureau Firewood Workshop. Washington: USAID, 1978.

Traditionally, the Mbere people had the right to forage for fuel. Firewood, a free good with considerable symbolic importance, was classified by overlapping criteria: inherent qualities, accessibility, dimensions, particular uses, and wet and dry season characteristics. Before land adjudication, there were some restrictions on tree use. Certain species such as Melia volkensii, an important timber species, were considered private. Sacred groves and forest reserves were protected. Some clans had local vegetation conservation rules regarding control of trees along riverbeds or on hillsides.

Privatization of land reduced communal user rights. With adjudication, land became private and people lost or had restricted the following tree rights on the land of others: planting trees, cutting firewood for sale, cutting firewood for domestic use, picking up fallen branches for domestic use, placing beehives in trees. Selling firewood, which used to be an indication of poverty, has become an acceptable source of cash for all.

Firewood as a commercial good and land as a private good reduces the likelihood of community wood lots. The increasing scarcity of firewood may make agroforestry attractive, but it is unlikely to be allowed on borrowed land. (Kenya)

26. Brokensha, David, and Riley, Bernard  
Vegetation Changes in Mberé Division, Enbu. Working Paper, no. 319.  
Nairobi: University of Nairobi, 1977.

Land adjudication has led to exclusion. Sacred groves were distributed and thus doomed. Firewood sales unthinkable in 1970 were observed in 1976. Many people report that they need the land owner's permission before collecting anything, and that sometimes a fee is demanded. In most cases, people are allowed to collect without a fee, providing they are on good terms with the owner, ask permission, and collect for their own use and not for resale. Every plant has an owner who restricts its use by others. A small but increasing number of people have rights to neither land nor plants. (Kenya; ICRAF)

27. Brookman-Amisah, J.  
Forestry and Socio-Economic Aspects of Modification of Traditional Shifting Cultivation Through Taungya System in Subri Area (Ghana) Case Study.  
Kumasi: Forest Products Research Institute, 1983.

Cultivation of tree crops ensures some permanency of rights to the land. Under the modified taungya system, the wood is sold as sawn timber rather than being burned to fertilize the land. Food is sold to forestry workers. The system of land tenure does not ensure permanent ownership of land, and hence the desire to enhance its productive capacity is identified as a problem. (Ghana; OD1)

28. Bryson, Judy C.  
Women and Economic Development in Cameroon. Yaounde: USAID, 1979.

Women have played a minor part in the production of cocoa and coffee. This is partly due to the fact that except for the Queen Mother, women formerly did not own land in the areas where they are produced and it is still the unusual woman who owns land. Planting trees entails an opportunity cost for women. In the event of divorce with the wife leaving the family to live elsewhere, all her personal possessions and food supplies or unharvested crops are forfeited to the husband. Thus, it is more in women's interest to plant annual crops from which they are more likely to benefit. (Cameroon; USAID/NAIROBI)

29. Campbell, David, and Kiddell, James C.  
"Social and Economic Change and the Intensity of Land Use in the Mandara Region of North Cameroon." Journal of Economic and Social Geography, in press.

The Mandara Mountains with over 21 major ethnic groups, are noted for their terraces and intensive cultivation and also for having one of the densest rural populations in Africa. The data support Boserup's thesis concerning the relationship between population pressure and intensification of production. As people move out of mountain villages to the open plains, their production becomes correspondingly less intensive.

On the hillside terraces and on the plains, the farmers recognize the benefits of *Acacia albida* to agriculture. These trees are protected and during a drought they are the last to be cut.

The land tenure system on the surface appears to be very complex. But it is in reality a case of equal inheritance among sons (and daughters in a few ethnic groups) with either the progenitor or the ultimogenitor assuming management of the father's house and on-going farming operation. All children hold residual rights in this farm. (Cameroon; GEOGRAPHY)

30. Chaudhry, Muhammed Azfal, and Salim, Silim  
"Agro-Silviculture in Uganda: A Case for Kachung Forest." Unayylva  
(1980): 21-25.

Under customary law, land usually belongs to the tribe, clan or family. Inheritance may lead to fragmentation. Any land lying unoccupied for ten years can be occupied by an individual, family or a clan. The occupation must last for a long time and the land put into effective use during that period without anybody else claiming it before ownership can be proclaimed. By law, public lands are vested in the land commission of Uganda and are administered by the District Land Committees. Under the taungya system, tenants may not grow perennial crops that might suppress the seedlings. Farmers compensate for this by unfortunate accidents that eliminate seedlings. (Uganda; ICRAF)

31. Christiansson, Carl; Goranson, Ulla; and Lundgren, Lill  
Enlarasha and (Mlaya) Land Use, Socio-Economy and Environment in Two Areas in the Central Kenya Highlands. Stockholm: University of Stockholm, Department of Geography, 1981.

The firewood demand at 5,150 kg per household per year exceeds the potential annual wood production of Central province. Fifty percent of a sample of 22 private farms were self supporting in firewood. Twenty-one of these households wanted to plant trees for firewood. Common land where people can gather firewood is limited. The lack of sufficient land to plant trees was mentioned as a problem.

There is potential for agroforestry involving species usable for firewood. However, increasing land pressure in the area may limit the degree of participation, particularly with the disappearance of commonly owned resources. (Kenya)

32. Chubb, L.T.  
Ibo Land Tenure. Ibadan: Ibadan University Press, 1961.

Plantation trees are the property of the planters or their descendants, though in some areas widows are reserved the rights in breadfruit trees, which they hand on to their sons. (Nigeria)

33. Coker, G.B.A.  
Family Property Among the Yorubas. Second edition. Lagos: African Universities Press, 1966.

Customary law does not vest ownership in the strict sense in the family, but ascribes to the family the aggregate rights described as ownership. To all intents and purposes, the family is the owner and in modern conveyancing the family is usually cited as possessing "an estate of inheritance." Case law holds that women have the right to inherit land. (Nigeria)

34. Goldham, S.  
"The Effect of Registration of Title Upon Customary Land Rights in Kenya." Journal of African Law 22 (1978): 91-111.

The author describes the result of land registration among the Luo. Before registration, related households had certain rights (the right to pasture or water their cattle, the right to collect wood) over what was known as clan land. As a result of registration, this land was divided up among the various household heads, frequently leading to disputes. Even when the division was carried out fairly, adjudication did not confirm many existing rights. Rights of many household members, notably women, were extinguished by registration. Only six percent of the plot holders registered were women. (Kenya)

35. Cory, Hans  
Sukuma Law and Custom. Westport, Connecticut: Negro Universities Press, 1970.

In this reprint of a 1953 publication, the author reports that trees and perennial crops, such as bananas, sisal and sugar cane, are divided among the Sukuma heirs. However, trees planted in the immediate vicinity of the house are considered as belonging to the house and are therefore inherited by the heir to the house. Trees a man has planted or trees growing on the land allotted to him are his property. If a man wishes to make a tree plantation, he can only do so on the three acres of his grazing reserve. If a man has obtained a large estate on which there are trees, he cannot keep more than two acres as his private forest reserve if the community decides to claim the rest of the tree area from him.

Wild fruits of the bush are free to everyone. The collection of grass, building poles and fuel is free to everyone except in areas expressly closed. The collection of fuel is free to everyone, even on another man's land, except in one small area where dry branches of a tree are the property of the land owner.

Trees the occupier has planted himself and trees he found on the land when it was allotted to him may be sold, but not the land. If a man relinquishes his holding, the trees revert with the holding to the community. A man can sell a plot of fruit trees within his holding, unless the trees are planted in the immediate vicinity of his house. If he sells the plot, it is understood he has sold only the trees and not the land. If the buyer does not ask local authorities that the land between the trees be allotted to him, such land can be allotted for cultivation to any applicant. The occupier can cut trees other than fruit trees and sell them and remain in occupation of the plot. An occupier cannot sell non-fruit trees for any purpose other than immediate cutting, whether he is retaining occupation of the land or intending to relinquish his holding. The plot from which trees have been sold for immediate cutting reverts after the cutting to the community. The buyer of the trees has no right to any trees that may afterward grow on the plot. (Tanzania)

36. Cory, Hans, and Hartnoll, M.M.  
Customary Law of the Haya Tribe. London: Frank Cass, 1971.

In this reprint of a 1945 publication, the authors report that traditionally, forest keepers, mukumu, were appointed. The following forest types are distinguished: royal, public, individually-owned, clan-owned, Native Authority, and communal village forest plantations. A person may buy trees but must cut them within a reasonable period of time. Unless otherwise stated, all wood that cannot be used by the buyer for the purpose for which he/she bought the timber remains the property of the vendor (such as brushwood, which has been chopped off the poles).

If not otherwise stated, timber on pledged land is the property of the mortgagee, who may cut the trees. A mortgagee may fell trees on pledged land but may not plant them. All fallen wood except that on a kibanja (land planted with perennial crops), whether on private or public land, is free to all. If an owner fells a tree, no one else has any right to take wood from it. Firewood is the property of the collector as soon as it is gathered. If a woman collects more than she can carry in one journey, the bundle she leaves on the side of the road may not be taken by anyone else. Rights of a landlord over his tenant's land are described including the right to cut wood for specified purposes. Trees dedicated to individual spirits, which grow on private land, are not the property of the land owner but belong to the part of the community that uses them for religious purposes. (Tanzania)

37. Deval, J. Leroy

"L'homme et le developpement de la forêt du Gabon dans le passe." In Where Have All the Flowers Gone?, Studies in Third World Societies, no. 13. Williamsburg, Virginia: William and Mary University, 1980.

Primarily a study of past human migration and farming practices and how they have affected the current forest stands in Gabon. From a tenure interest, the past system of short farming cycles and cultural preferences for opening new forest in search of fertile land has had the overall effect of increasing the amount of forest in Okumé due to its early appearance in the regeneration cycle. (Gabon)

38. Deval, J. Leroy, and Legault, Faustin

"Establishment of Forest Villages in Gabon." In Agro-Forestry in the African Humid Tropics: Proceedings of a Workshop held in Ibadan, Nigeria, 27 April-1 May 1981, ed. L.H. MacDonald. Tokyo: United Nations University, 1982.

Forests in Gabon belong to the government, but the rural population exercises the right to meet community and personal needs for firewood, building materials, medicinal plants and so on through collection there. Reforestation centers provide food to elderly villagers and staff to reforest Aucomea. (Gabon: ICRAF)

39. Dobson, E.B.

"Land Tenure of the Wasambaa." Tanganyika Notes and Records 10 (1940): 1-27.

An anthropological study by an amateur whose colonial attitudes jar. Under what the author calls tribal tenure, an occupant may not sell permanent crops such as coffee or bananas "even if he has planted them himself. He may cut down for his own use any trees that are growing on the land, but he may not sell the wood for profit from it in any way." As a general rule, neither fruit nor shade trees are cut. Under what the author calls family tenure, that is inheritance within a family, permanent crops may not be sold without family approval. But trees could be cut down and the wood sold without permission. Daughters inherit, but get a smaller share than sons.

40. Dubois, Jean

"Aspects of Agro-Forestry Systems Used in Mayombe and Lower Congo (Zaire)." In Workshop Agro-Forestry Systems in Latin America (Turrialba, 1979), Proceedings, ed. G. de las Salas, pp. 84-90. Turrialba: CATIE, 1979.

Nkunku is a system of enriching fallow land through introducing of food and fruit tree species, practiced by the Bakongo. The people scatter fruit seeds on communally held land in a community effort. When these trees begin to bear fruit, they are considered community property. The nkunku also supplies the community with fuelwood, fence poles, and stakes. The members of each family sow plantains, oil palms, coconut palms and Dacryodes edulis in orchards that are individual or family property. (Zaire: ICRAF)

41. Duncan, Patrick

Sotho Laws and Customs. Cape Town: Oxford University Press, 1960.

Indigenous trees and bushes fall under the category of liremo (plants not cultivated that have an economic value). As such, they are the property of the Sotho people, their use being controlled by the chieftainship. It is an offense to cut or damage any tree without the permission of the chief or his caretaker. A long time ago, if a commoner wanted to plant trees, he could. Now, no individual has this right without the chief's permission. When the family of the planter leaves the area, coppicing trees become liremo. If they are non-coppicing, the plot may be reallocated to another family. Self-sown trees, and the suckers of coppicing trees that grow in public land, belong to

the people and are controlled by the chief. If a person sows wattles in a plantation and they thereafter produce self-sown wattles outside the original plot, they also belong to the people under the control of the chief. Suckers and self-sown trees appearing in land belonging privately to another person belong to that person. (Lesotho)

42. Earthy, E. Dora

Valenge Women. London: Oxford University Press, 1933.

Anyone who cuts down a *Trichilia ematica* tree is fined and the owner is compensated. Unauthorized persons may not gather the fruit of this tree.

43. Ebenshade, Henry W.

"Recommendations for a Community Development Programme . . . Agro-Forestry for Combatting Gully Erosion in Lesotho." Mimeographed, 1977.

Twenty-five percent of the arable land is so badly eroded as to require taking it out of production. Fencing and official sanctions have been attempted in the past to protect new grass and trees for gully stabilization, but they did not prove compatible with the existing Basotho system of land tenure and management. Some communities have reclaimed gullies without fencing, which appears to reflect a social and religious role of trees in those communities. (Lesotho: ICRAF)

44. Egharevba, J.O.

Benin Laws and Custom. Lagos: Service Press Limited, 1943.

It was permissible to gather fuel on a neighbor's farm provided a man's own wood was finished and he could find no bush land from which to get it. Any tree could be felled except iroko, which the king alone used in the old days. If a stranger were unsure of remaining in a place, he would plant permanent tree crops. However, if he left, he was not allowed to sell them. (Benin: SOAS)

45. El-Arifi, Salih

"Some Aspects of Local Government and Environmental Management in the Sudan." In Proceedings of the Khartoum Workshop on Arid Lands Management, ed. J.A. Mabbutt. Tokyo: United Nations University, 1978.

In sedentary communities, there are three rights: the right to a plot of land for constructing a hut; the right to a piece of land for farming; and the right to cut wood, which may be extended to collecting gum arabic. Under the 1932 Forest Ordinance, local officials could arrest and local courts could try those committing forest offenses. Local officials received the royalty on gum arabic collection from non-private plots. The 1971 People's Local Government Act abolished the functions and duties of traditional local government, thereby making enforcement ineffective. (Sudan: ICRAF)

46. Elias, T.O.

The Nature of African Customary Law. Manchester: Manchester University Press, 1962.

A person can own--in the true sense of the word--the plants he has grown and the house or other structures erected on his allotment, while the title to the land itself remains in the holding group. If for proper reasons he is ever lawfully ejected from his holding, he is entitled to take away all the superstructure he may have brought on to it. In some cases, his otherwise conditionally revocable title may become irrevocable in consequence of his having been allowed to build substantial houses or grow economic trees on his land. Cases are not unknown in which land is permanently given or sold by its owner to another, and yet the right to certain economic trees on it is by

special custom reserved solely to the inhabitants of the locality. Certain sacred grove and as yet unallocated forest land may be said to be owned by the whole community, as opposed to most land, which is corporately owned by kinship groups and individually held. (Nigeria)

47. Elias, T.O.  
Nigerian Land Law. London: Sweet and Maxwell, 1971.

This work is one of the best compilations of the relationship between traditional and case law in Nigeria, and hence is a classic in the field. The author draws on numerous examples to illustrate key concepts. For instance, in Nupe and certain parts of Yoruba land, a custom exists whereby only the indigenous people of the locality can utilize palm trees. Case law upholds the traditional separation of land from the things on it. Depending on local custom, a pledgee may be restricted to the usufructuary rights to those trees or crops he has planted since taking possession of land, or he may be permitted to exercise all the powers of an owner-occupier. In the latter case, if he plants permanent or economic trees, he is usually not allowed any compensation for improvements when the pledge is redeemed. Sometimes only the crops are pledged. Pledges are perpetually redeemable. Trees may or may not go with borrowed land. (Nigeria: LTC)

48. Elias, Taslim Olawale  
The Nigerian Legal System. Second edition, revised. London: Routledge and Paul, 1963.

Sometimes a community with surplus land grants a portion of land to another community for permanent settlement. In such cases, tributes are usually payable by the "guest" community to the "host" community. The grantees under this arrangement enjoy all the usual rights of owner/occupiers, but reservations are sometimes made in favor of the original planters of economic trees or permanent crops. At least in the early stages of such settlement, the grantee's right to cut down or destroy certain trees may be made subject to the chief's approval. (Nigeria)

49. Elliott, Howard James Clinton  
"A Benefit-Cost Analysis of Smallholder Tree Crops in the Ivory Coast."  
Ph.D. Dissertation, Princeton University, 1977.

Author's Abstract : The maintenance of export agriculture as a leading sector in Ivoirian development requires decisions among crops and methods of organizing production employing different factor proportions. This dissertation develops a benefit-cost approach that compares economic returns from crops under different indices of profitability to the Ivory Coast. For each level of national productivity, there are many possible divisions of financial returns, determined by tax and subsidy policies, which are studied using appropriate indices of financial profitability to farmers and government. Tree-crop policy for the Ivory Coast is analyzed using results from economic and financial analyses of crop-development strategies for three crops: coffee and cocoa, two traditional exports, and oil palm, the key crop in diversification efforts. (Ivory Coast)

50. Ellis, James E.; Coppock, D. Layne; McCabe, J. Terrance; Galvin, Kathleen; and Wienpahl, Jan  
"Aspects of Energy Consumption in a Pastoral Ecosystem: Wood Use by the South Turkana." In Wood, Energy, and Households: Perspectives on Rural Kenya, eds. Carolyn Barnes and Jean Ensminger, Forthcoming.

As wood is a common property, there are few constraints on its acquisition. Tree conservation is practiced in particular ways. Acacia tortilis trees are recognized as important sources of shade and forage for goats, which consume seeds and pods during the dry season. No live trees of

any species are cut for fuel. Only dead wood is collected. Live trees are cut for construction, but these are usually small trees of abundant species. Construction materials are usually taken from young trees, which are much more abundant than older larger ones. (Kenya; ICRAF)

51. Enabor, E.E.

"Socio-Economic Aspects of Taungya in Relation to Traditional Shifting Cultivation in Tropical Developing Countries." FAO Soils Bulletin 24 (1974), 191-202.

Shifting cultivators are the ultimate owners of forest land in Nigeria. Land hunger is a precondition for taungya. Permanent cash crops are strongly advocated in order to get people above the subsistence level even though they are usually excluded because of the long term tenure such crops necessitate and which may lead to claims of ownership over the land. (Nigeria; ICRAF)

52. Ensminger, Jean

"Monetization of the Golole Orma Economy: Changes in the Use of Fuel and Woodstock." In Wood, Energy, and Households, Perspectives on Rural Kenya, eds. Carolyn Barnes and Jean Ensminger, Forthcoming.

All land is communally owned, so firewood and wood for building are available for collecting by all sedentary and nomadic villagers. (Kenya; ICRAF)

53. Ethiopian Forestry and Wildlife Development Authority

A Forestry and Wildlife Development Programme for Socialist Ethiopia, Part I, General Description. Addis Ababa: Ethiopian Forestry and Wildlife Development Authority, 1978.

Indications that forest area destroyed annually through indiscriminate burning had decreased are reported, and attributed to the change in land tenure under which landowners no longer take half the crop, so the farmer can afford to manage land for the long run. Peasant Association plantations for fuelwood and building poles are proposed. Land hunger in the past led to the view of forest reserves as land reserves to be cleared for agriculture. (Ethiopia)

54. Fimbo, R.W., and Fimbo, G.M.

Customary Land Law of Tanzania. Dar es Salaam: East African Literature Bureau, 1973.

A clarification of the right to land being established by planting trees is found in Mariam bint Chaulembo vs. Hamisi (1946) (App. to the Governor 140 (No. 24/1946)). The plaintiff had planted eight coconut trees on land on which the defendant had later planted 392 coconuts. The court held "Under native law and custom in this part of the territory, land can only be acquired by effective cultivation and cultivation to the extent of only eight trees cannot be permitted to establish claim to an area containing 400. Since the exact situation of the original eight trees cannot now be ascertained, the defendant must be regarded as in lawful possession of the whole area now in dispute but he must compensate the plaintiff in respect of the eight trees which were in existence when he assumed possession." Women can inherit usufruct in land even if they cannot inherit the land itself. Crops may be pledged and the usufruct serves as interest. (Tanzania; UNIVERSITY OF NAIROBI)

55. Fisher, Jeanne

The Anatomy of Kikuyu Domesticity and Husbandry. \_\_\_\_\_, Department of Technical Cooperation, 1953.

The author reports on field work done in 1950-1952. There are communal rights over trees and firewood supplies. The availability of firewood is demonstrated by the words of an elder: "Formerly there were large forests and all people had permission to cut wood and split firewood wherever they wished. The descent groups (lineages) were the owners of the forests but everyone had permission to cut trees," and the words of two women: "In these days a woman must go and cut firewood from her own trees or tree stumps" and "If a woman has no trees of her own she can buy trees from friends or ask friends for permission to cut their trees."

"Purchase" of land (equivalent to pledging in West Africa) provides no security of tenure as the "purchase" is perpetually redeemable. The "purchaser" must obtain permission from the vendor before planting permanent crops and valuable trees because they will raise the redemption price. When the land is redeemed, permanent crops and trees planted by the purchaser are his property over which he has full rights of disposal. He is free to sell or transplant permanent crops that can be harvested or removed. Mature trees are felled for his own use or for sale, but saplings are left on the land and become lineage property. In the case of plantains and bananas, the plants are counted and apportioned according to the stage of their development. The purchaser has the right to all the fruiting plants, the lineage member claiming the land to all the young plants that will bear fruit later. Those who borrow land from a friend may not plant fruit trees, wattle, or coffee. (Kenya; UNIVERSITY OF NAIROBI)

56. Fleuret, Anne

"Factors Affecting Fuelwood Use in Taita, Kenya." Paper presented at the African Studies Association Meetings, Boston, December 1983.

Planting trees is said to be inhibited by the policy of consolidating and registering land which, pending consolidation and registration, creates uncertainty about the future ownership of a given piece of land. (Kenya; ICRAP)

57. Fleuret, Patrick C., and Fleuret, Anne K.

"Fuelwood Use in a Peasant Community: A Tanzania Case Study." Journal of Developing Areas 12 (1978): 315-322.

The authors studied a village of 200 people associated with a large forest reserve where the inhabitants are allowed to collect downed wood, fallen trees and branches along with the unusable remnants left by a small number of licensed timber cutters. To keep pace with their consumption, villagers would have to plant 1,360 trees per year. (Tanzania; ITC)

58. Food and Agriculture Organization

Agroforesterie Africaine. 1981.

The definition of agroforestry used is based on that used in the FAO document "Forestry for Local Community Development." The objective of this document is to suggest practical agroforestry projects to improve the well being of African countries. The main suggestions are to improve the "Culture de case" and by the use of mini-nurseries established in schools in all countries concerned. The authors describe in general terms the problems facing agricultural production. Three annexes describe traditional land use systems. Tenure is cited as a major problem facing agroforestry. The lack of private ownership is to be overcome for successful agroforestry. A possible solution is to fence areas off and to plant valuable tree species.

59. Food and Agriculture Organization  
The Agricultural Economy of Swaziland, 1980.

Swazi Nation Land is owned communally by the Swazi people, but is vested in the monarch who holds it in trust for the nation. Any individual, whether a newcomer or an established inhabitant, may acquire rights over arable land by: a) direct grant from the chief; b) direct grant from an individual (who may grant the right to use the land but not the right to settle); c) loan; or d) inheritance. In practice, individuals are very seldom deprived of their land, but lack of tenure security is considered a constraint to planting trees. Under the Control of Tree Planting Act of 1972, no tree may be planted on agricultural or intermediate land without special permission from the Ministry of Agriculture and Cooperative. Such permission is very hard to get. Thus, trees can only be planted on marginal land with slopes of 15 percent or more. (Swaziland)

60. Food and Agriculture Organization  
FAO Africa Survey Report on the Possibilities of African Rural Development in Relation to Economic and Social Growth. Rome: FAO, 1963.

A superficial discussion of tenure of forest land mentioning specific cases in Nigeria, Liberia, and what are now Malawi and Zimbabwe.

61. Forest Products Research Institute  
A Report on Socio-Economic Study of Dwomo and Nchiraa Villages in Connection With Agri-Silvicultural Research Project. Mimeographed. Kumasi, Ghana: The Forest Products Research Institute, 1978.

All the indigenous farmers had usufructuary interest in their lands with the absolute interest vested in the Golden Stool through the Dwomohene. Although there are no restrictions on the use of the land held by the farmers, rights in timber trees over the land are still vested directly in the Asantehene through the Dwomohene. The general rule in Dwomo is that a person cannot sell the land he is occupying without the prior consent of the chief. Although outright sales of land were formerly an abomination, farmers have always had the right to pledge their holdings and to grant tenancies according to their own terms and conditions. Land is inheritable. Renting is possible. There are no restrictions on a stranger's use of rented land. There is in Nchiraa suspicion of tree planting, because in an earlier commercial project the company rescinded its promise that farmers could get firewood and poles free from the plantation. (Ghana: ICRAF)

62. Gayer, C.M.A.  
"Report on Land Tenure in Bugusia." In Readings in African Law, eds. E. Cotran and N. Rubin, v. 1, pp. 340-341. London: Frank Cass, 1970.

An individual may dispose of trees growing on his/her land. Firewood may be gathered freely anywhere in the communal forest, but no dead wood or windfalls may be collected on someone's land unless with his/her permission. Extracted from a 1952 publication. (Bugusia)

63. Gershenberg, Irving  
"Customary Land Tenure as a Constraint on Agricultural Development: A Re-Evaluation." Journal of Rural Development.

It is generally argued, says the author, that customary land tenure fails to provide tenure security, discourages conservation and natural resource improvement, fails to encourage credit and investment necessary for agricultural development, and causes economic fragmentation and poor land utilization. Colonial and post independence land policies in Africa reflect the belief that individual tenure is inherently superior to customary tenure.

Against this argument can be seen the following positive features of the customary system. No community member is left without land, every individual is assured of tenure security, as the land cannot be alienated without the consent of community authorities. Improvements on the land belong to the developer, can be passed on to children and must be compensated for if the land changes hands. Hence, there are incentives for improvement and effective land use. Credit shortage may encourage individual initiative and saving. Cooperatives could be used to channel credit.

Fragmentation is not only a result of land pressure but also a rational response to ecological factors such as soil variation. Fragmentation is found wherever inheritance laws require that all heirs have an equal share in the estate, which includes systems of private land tenure. Planting perennial crops such as cocoa and coffee has not been hindered by customary tenure, even though planting such crops tends to convert the land planted with them into a hereditary holding.

Customary land tenure is compatible with agricultural innovation such as agroforestry. Needs such as collateral for credit can be arranged by imaginative use of the traditional system. The incentive to use land effectively under such systems should be an advantage to agroforestry projects.

64. Glazier, J.

"Land Law and the Transformation of Customary Tenure: The Mberu Case." Journal of African Law 20 (1976); 39-50.

Implementation of national land legislation created great insecurity, since it has set in motion an unprecedented amount of litigation. (Kenya)

65. Gluckman, Max

Ideas in Barotse Jurisprudence. New Haven: Yale University Press, 1965.

Among the Tonga, anyone may take the wild fruits from trees, even in cultivated gardens. In contrast, when a Barotse makes a garden in the bush, he is forbidden to fell wild trees. These trees come temporarily under his ownership, for no one may pick wild fruit from trees in gardens. As soon as the garden reverts to fallow, anyone may again take fruit from the trees. (Zambia; MEMORIAL)

66. Goody, Jack

The Social Organization of the Lowili. Second Edition. London: Oxford University Press, 1967.

Based on 1950-1952 field work. The farm owner holds the rights to fruit trees on the land. Rights over other trees are more vague although no one would cut down a tree on another's farm without permission. Anyone can cut firewood and roofing poles from trees in the bush although the members of the ritual community feel they have the first claim.

67. Guillot, B.

"La création et la destruction des bosquets Koukouya, symboles d'une civilisation et de son déclin." In ORSTOM vol. XVII, nos. 3-4 (1980); 177-189.

The ownership of land by the Koukouya people who live about 200 kilometers north of Brazzaville is substantiated by the presence of a forest or grove around the village. The lineage of the first occupant of the land owns it, whereas individual users of the land have use rights to it, but not ownership. Lineage is of four types that depends on family history but essentially depends on paternal inheritance. The rights of the lineage include ownership of the soil, game and certain forms of gathering in the groves. While these lineages own their own groves or forests, they may be subservient to others based on the relative importance of the groves. In essence a hierarchical nature of Koukouya society.

68. Gulliver, P.H.

Land Tenure and Social Change Among the Nyakyusa. Kampala; East African Institute of Social Research, 1958.

The traditional tenure system, evolved under a situation of surplus land, guaranteed arable land within the village to all men and provided excellent tenure security. Under this system, trees were inherited along with the land on which they stood. A brother or son would inherit the deceased's valuable trees without bothering to take the arable land around them. If a man left his village, banana trees went with the land and the new occupant simply took them over; bamboos are more valuable and any left behind in this way would be claimed by the chief. If he did not want them, then the local kinsmen of the man had first claim. If they had no use for the trees or if no kinsmen were residents in the village, the trees became village property to be allocated by the headman. Oil palms were also allocated with the land. Trees supplying firewood were generally plentiful in the surrounding bush land. A man would not cut wood on another's land, and standing trees went with the land if it was taken up by anyone else. With land scarcity, sons took up their fathers' building sites and banana groves. The author states that one of the results was land fragmentation. (Tanzania; LTC)

69. Hammer, Turi

Reforestation and Community Development in the Sudan. DERAP Publications, no. 150. Bergen, Norway; Chr. Michelsen Institute, 1982.

Traditionally, land was allocated by the sheikhs. In the late 16th century, a quasi-privatization of land took place in which farmers claimed rights to plots after the cultivation period in order to secure income from Acacia senegal trees. Until the mid 1900s, dead trees and fallen branches constituted the major source of fuelwood, as live trees were cut only when clearing land for cultivation. Acacia senegal trees were never cut. Now, everything is cut for firewood. A reforestation project was limited to farmers with more than 3.5 hectares, on the grounds that less than this was uneconomic. This was opposed by villagers who said everyone needs trees. (Sudan; ODI)

70. Hammer, Turi

"Wood for Fuel: Energy Crisis Implying Desertification: The Case of Bara, The Sudan." M.A. Thesis. University of Bergen, 1977.

Women rarely own land. Traces the history of individual rights to gum arabic trees. Since the decline of gum exports, control by tree owners has decreased and trespassing to tap the trees for gum or cut them down for fuel has increased. "According to Forests Laws, no tree whatsoever should be cut, except for the purpose of clearing ground for cultivation, without permission from the local forest office. When asked, the Forest Office people in Bara admitted that nobody ever comes to ask permission although they knew that lots of trees were cut daily on government land." (ICRAF)

71. Hammond, Peter B.

Yatenga. New York; The Free Press, 1966.

In the case of borrowed land, the owner had continued and exclusive rights to gather firewood, fruit, and leaves from trees and shrubs on the land. Rights in perennial plants and trees are "transmitted or retained independently of shifts in the right to land use itself." (Upper Volta)

72. Haydon, E.S.

Law and Justice in Buganda. London; Butterworths, 1960.

Only the landowner has the right to sell trees of economic value, firewood for brickmaking or bush for charcoal burning. Dry firewood is usually not

sold, but left for the tenants to collect for their own use. The tenant has no right to sell any trees, not even barkcloth trees or firewood. He has the right to cut down the barkcloth trees, fruit trees and coffee trees on his plot without asking his landlord's permission, but must not do so just prior to leaving the plot. The tenant may sell the produce of such trees. If he plants economic trees, he must come to an agreement with the landlord first on what the landlord's share of the produce will be. On his departure, the trees become the property of the landlord. No one may remove trees connected with spirit worship. Fruits of the land can usually be taken by anybody if permission is sought. Fruits from trees on his plot belong to the tenant. (Uganda)

73. Hill, Polly

Migrant Cocoa Farmers of Southern Ghana. Cambridge University Press, London, 1963.

Customary law, in many parts of Ghana, prohibits the sale of land. Rights over land are traditionally vested in family groups. However, the establishment of cocoa farms away from traditional lands has led to individual ownership and private tenure. Outright sale of lands, pledging of lands, granting of rights on lands, and bequeathal of lands has begun to occur.

74. Holleman, J.F.

Shona Customary Law. Manchester: Manchester University Press, 1969.

Firewood, wild fruits and honey are collective goods. Non-village members must be allowed to pick wild fruits. (Zimbabwe; SOCS)

75. Horowitz, M., and Badir, K.

Sudan: Introduction of Forestry in Grazing Systems. Rome: Food and Agriculture Organization, 1981.

In law, all otherwise unregistered land belongs to the state. In practice, local land tenure is followed. Generally, land is grazed by those who have firm rights of access to local wells. There is no evidence to indicate that elite groups or individuals have privileged access to pasture. A program of fodder-tree planting would benefit those who own animals, especially large herds. But small herd owners would not likely be deprived access to this resource. For example, trees which sprouted on millet field during their fallow phase might be reserved for the benefit of the title holder. On communal grazing lands, access would be more widespread, but the potential problem of proper management presents itself since it is difficult to assign specific responsibilities for the protection of seedlings, and hired guards may prove necessary. Some villages have assumed responsibility for protecting forest reserves and have restricted unlicensed tree cutting and charcoal manufacture. This may, however, represent the efforts of the rich to protect their own trade in fuel.

There are four classes of wooded areas. Forest Reserves have grazing but no cultivation allowed. Individuals from villages within the area are entitled to collect dead wood and fallen branches, but cutting live wood and manufacturing charcoal is restricted to licensed specialists. Communal Forest Areas are subject to unregulated exploitation. Village-controlled Forest Areas are small areas closely supervised by villagers. Wood collection and grazing is limited to village members. Privately-owned woodlots are those planted in fallow fields, and the trees belong to the title holder. (Sudan, ICRAF)

76. Hoskins, Marilyn

"Social Forestry in West Africa: Myths and Realities." In American Association for the Advancement of Science Annual Meeting. Washington, DC, AAAS, 1982.

In the Cameroons, the forestry service decided residents needed trees near their village to provide convenient fuelwood and to discourage wood pilfering from the forestry reserve. When foresters constructed protective fences for the planting, local men afraid that the land would be nationalized tore them down. (Cameroon; ICRAF)

77. Hoskins, Marilyn

"Observations on Indigenous and Modern Agro Forestry Activities in West Africa." United Nations University Workshop: Problems of Agro-Forestry. University of Frieburg, 1982.

In an Upper Volta project what urban planners saw as "useless bush" had many local uses. The land was taken over for an urban plantation and local use rights were overridden by leaders and project managers. There is a danger that tree planting may be viewed as a forestry department attempt to take over village land as tree planting may be a prerequisite to land ownership. Tuangya systems are popular with the landless. Foresters may resist taungya for fear it will lead to claims over forest land. In some areas dead wood is a common good, while in neighboring communities it is not. Fruits of certain trees may belong to certain classes of families. Tenants may be forbidden to plant trees because it establishes land rights. Land registration is usually done in the name of male heads, extinguishing women's land rights. No project can succeed in obtaining local support unless residents are willing to accept its definition of land-use rights.

78. Hoskins, Marilyn

"Community Forestry Depends on Women." Unasyuva 32: 27-32.

Clearing of "useless bush" removed access to numerous forest products and no access was granted to new plantations. Queries why women should plant trees on someone else's land if they know that the trees will not be available for their use. (Upper Volta)

79. Humphrey, Norman

The Liguru and the Land. Nairobi: Government Printer, 1947.

Control was exercised over untouched forest and certain trees were protected. No one could cut down forest without permission. People living near forest reserves were allowed to collect fuel from them without charge. Common rights were held in forests. (Kenya; SOAS)

80. Ibik, J.O.

Restatement of African Law: 4 Malawi II, the Law of Land, Succession, Moveable Property, Agreements and Civil Wrongs. London: Sweet and Maxwell, 1971.

The laws of different ethnic groups are considered for each of five regions. The following are common to all. There are customary rights to the common use of land for collecting firewood and the cutting and removal of branches of wild non-economic fruit-bearing trees for building or firewood. In general, the sale of fruit-bearing trees will be suspect as a surreptitious sale of land. (Malawi)

81. Iyambo, D.E.

"Ecological Aspects of Agro-Forestry in the Lowland Humid Tropics, West Africa." In International Cooperation in Agroforestry, Proceedings of an International Conference, eds. Trevor Chandler and David Spurgeon, pp. 129-143. Nairobi: DSE/ICRAF, 1979.

Agroforestry and forestry for local community development contain some concepts that differ from established tenets of professional forestry practice. For example, the concept of permanent land tenure for forest plantations has to be modified in some cases. (West Africa, ICRAF)

82. James, R.W.

"Judicial Developments in Customary Law: Some Reflections." Journal of the Denning Law Society 2 (1967): 41-58.

In Tanzania and Nigeria, case law is increasingly using concepts of western private tenure. Case law is changing customary law. In a 1965 case, Ibbi Juda Omari vs. Issa Adallah, the Chief Justice of the Tanzania High Court held "If indeed it is the custom of the district that a person who has once occupied land and demarcated the boundaries by planting sisal can ever after claim possession of that land, no matter how long he had abandoned it uncultivated, such a custom would be unreasonable. Indeed the general pattern of native land tenure would appear to be one of a right to occupancy and use . . . Not only is this the usual communal pattern, it is also the policy of the Government as shown in its current legislation. Rights of occupancy to land depend on the proper use thereof and failure to use the land properly may result in revocation of the right." The judge found in favor of the appellant who had cultivated the land for 12 consecutive years. (UNIVERSITY OF NAIROBI)

83. James, R.W.

Tenure and Policy in Tanzania. Nairobi: East African Literature Bureau, 1971.

One rule of evidence concerning proof of title is that ownership may be inferred from certain acts of enjoyment of the land by the occupier, including planting permanent trees under customary law. One can manifest the intent to return by planting permanent trees and returning at intervals to look at them. However, planting permanent trees without permission by a tenant does not entitle the tenant (or borrower) to compensation and may constitute "misbehavior," thereby establishing grounds for forfeiting occupational rights. (Tanzania, SOAS)

84. Johnson, Judy

"Fuelwood Acquisition and Consumption in Two Kenyan Households." In Wood, Energy, and Households: Perspectives on Rural Kenya, eds. Carolyn Barnes and Jean Ensminger, Forthcoming.

In 1981, the author studied two districts of Kenya. In Tharaka, where land is communally owned, fuelwood is a free good on communal land. Trees are traditionally used to demarcate land or mark where there was once a compound. These trees cannot be cut and are reserved for future generations of the family. In Kiungu, land is privately owned and fuelwood can only be obtained as a free good if it is grown on one's own land or if it is a gift from a friend, relative or employer. Otherwise, fuelwood is purchased from neighbors or the local store. Crop residues were used as fuel before land demarcation, but to a lesser extent.

It is generally prohibited to collect dead wood from someone else's farm without permission. Someone caught taking firewood without permission can be abused verbally. If one is taking wood from an employer, s/he can be made to work or pay a fine. One can harvest the branches of someone else's tree, but would probably have to pay cash. The wives say it is usually cheaper to buy a whole tree than to cut the branches. (Kenya)

85. Jurion, F., and Henry, J.

De l'agriculture itinérante à l'agriculture intensifiée. INEAC, 1967.

Among the Bantu people in the Congo river basin, land belongs to the community but crops are individually owned. In general, usufructuary rights belong to the individual and the clans are organized on patriarchal lines. Trees are owned by those who plant them but are not tended when their benefits are not immediately available. Growing lands are likewise communally owned. In general, usufructuary rights belong to the individual who plants a crop or tree. During the fallow period, the land reverts to communal ownership.

86. Kamajou, Francois

"Socio-Economic and Institutional Considerations for the Improvement of Shifting Cultivation in Tropical Africa." In FAO Consultative Meeting on Shifting Cultivation. Mimeographed. Rome: FAO, 1973.

The system of land ownership or tenure has a determining impact on the performance and improvement of any farming system. The commonly found tribal, or common or collective, land tenure system is not conducive to long-term land investments by individual producers. (001)

87. Karimu, J.

"Strategies for Peasant Farmer Development: An Evaluation of a Rural Development Project in Northern Sierra Leone." Ph.D. Dissertation, University of London, 1981.

A scheme to improve rice production in the swamplands of Sierra Leone has put in jeopardy access to wild raffia palms, which are important for roofing. The project has made an issue of "ownership" of swampland, thus creating access problems for non-project farmers. Pledging tree crops is common among poorer farmers in the East. (Sierra Leone: SOAS)

88. Kludze, A.K.P.

Ghana: Ewe Law of Property London: Sweet and Maxwell, 1973.

Only the family head may sell timber and palm trees growing naturally on ancestral land. Trees are not regarded as part of the land though title to them vests in the holder of the paramount title to the land on which they grow. One can sell produce, but not the land itself. Confusion arises from tree crops. Since they grow for many years, their sale implies, in fact if not in law, a transfer to the purchaser of the right to the exclusive use of the land for an indefinite period. The legal theory is that the purchaser buys and the donee takes only the interest in the crops standing on the soil. It means that when the farm no longer exists, the family automatically resumes possession of the land. It also means that only the family and not the purchaser or donee is entitled to the timber and palm trees naturally growing on the land. Tenants may not sell or fell economic trees. The grant of a gratuitous tenancy for the cultivation of permanent cash crops resembles a gift, since the grantee's interest in these trees is both inheritable and alienable. Tenants may not grow such crops without permission. (Ghana: SOAS)

89. Köbbin, A.J.F.

"Land as an Object of Gain in a Non Literate Society: Land Tenure Among the Bete and Dida (Ivory Coast, West Africa)." In African Agrarian Systems, ed., Daniel Biebuych, pp. 245-267. London: Oxford University Press, 1963.

Land holdings and allocation were traditionally managed and undertaken by "segment-elders" of local villages. Plots were granted and used for a short period (2 years or less) for gardening, after which they were fallowed and returned to village control. The advent of commercial coffee and cocoa farming necessitated longer grants (at least 20 years), and has led to a system of permanent ownership and transfer of land.

90. Koroma, Aiah P.  
"Taungya in Sierra Leone." In Agro-forestry in the African Humid Tropics,  
ed. L.H. MacDonald, pp. 67-69. Tokyo: United Nations University, 1981.

In the 1930s, taungya was introduced to reduce the time and cost involved in establishing forests. Most of the land in the country was held communally with individual usufructuary rights. The general feeling in the country was that land owners who had given up land for forest reserves and protected forests generally did not receive adequate or immediate compensation. Thus it became extremely difficult for government to obtain additional land for forest plantations or even to retain the existing forest.

Under Taungya, each year planting areas are demarcated and invitations issued through the paramount chiefs to the farmers who formerly owned the land. They have the first rights to farm the land in exchange for clearing the bush fallow and following the planting guidelines set out by the government. Only the original land owner can reject the offer to farm and pass on the rights to someone else.

There appears to have been some sort of printing error in this article as the organization is rather confused. This annotation is based on what seems to be the intended organization of the article. (Sierra Leone; ICRAF)

91. Lahuec, J-P.  
"Le par. d'un village Mossi (Zaongho): Du traditionnel au modern." In ORSTOM vol. XVII, nos. 3-4 (1980), 151-154.

The tree park is defined as all tree like species on agricultural land. The trees present are selected for their usefulness. The tree is a symbol of land ownership except under cases of special agreements, the person who picks the fruit of a tree is also considered the land owners. The loan of a tree is always temporary and is never associated with the right to plant trees which would be, in effect, a way to renounce ownership of the land by the landlord.

92. Lambert, H.E.  
The Systems of Land Tenure of the Kikuyu Land Unit. Cape Town: University of Cape Town School of African Studies, 1949.

Some ethnic groups, notably the Meru, protected forest land. (Kenya: UNIVERSITY OF NAIROBI)

93. Landell-Mills, P., and Ragno, \_\_\_  
The Comoros: Problems and Prospects of a Small Island Economy.  
Washington, DC: World Bank, 1979.

Twenty percent of the cultivated land is held by colonial estates. Twenty percent is held by private individuals with an average holding of 25 hectares, but ranging to more than 200 hectares. The rest is held in village reserves allocated according to customary law. Each extended family has its traditional plot, which over the years has had to support a steadily increasing number of people. There is no communal land in the strict sense of the term. As a consequence of land hunger, a system akin to sharecropping has evolved on both the company estates and private holdings. Land hunger is aggravated by tree crop plantations established by colonial companies on land more suitable for food crops. Although the policy has been to transfer estate land to small farmers with the intent that they continue to raise tree crops, they do this only if they already have sufficient land for subsistence.

94. Lawrence, J.C.D.

"The Iteso." In Readings in African Law, eds. E. Cotran and N. Rubin, v. 1, pp. 348-351. London: Frank Cass, 1970.

Any person may gather wood on any land. Only an owner or user may cut trees on his/her land, but any person may cut trees on unallotted land. Certain trees, because of their food properties or utilitarian uses, are regarded as reserve trees and may not normally be cut down even by the person on whose land they grow. Trees planted by hand remain the property of the planter or his heir even if the land on which they grow has, through the planter's absence or some other reason, ceased to belong to him. But if he leaves the area, he must appoint some person to look after the trees and certify that they are his. Private trees may be bought and sold at the owner's discretion, and sale conveys no title to the land on which the tree grows. Extracted from a 1957 publication. (Uganda)

95. Leach, T.A.

"Date Trees in Halfa Province." Sudan Notes and Records 2 (1919): 96-104.

The author provides detailed and precise accounting of multiple ownership claims to date trees in the Halfa Province of the Sudan that are the result of Islamic inheritance laws. Date trees are planted on the land of others. The fact that estates in trees and land devise to different people posed problems for judicial and administrative personnel.

96. Leakey, I.S.B.

The Southern Kikuyu Before 1903, Volume I. London: The Academic Press, 1977.

By Kikuyu law and custom, land purchase included the timber growing on that land. In recognition of this fact, land that had utility timbers growing on it was usually sold for an enhanced price. Kikuyu law provided for the formation of what would now be called forest reserves. Owners of large stretches of land had the absolute right to prohibit all tree felling in certain areas either for fuel or other purposes. In spite of all these restrictions, any person living on an estate could cut down small, unimportant trees or firewood without special permission, provided that he or she did not touch timber trees or other valuable trees. Trees such as the loofah sausage tree, whose fruit was used in beer brewing, were the absolute property of the land owner and their fruit could not be harvested by anyone but himself. Tenants could plant whatever they wish. No tenant, however, could fell any tree for making stools, beehives, or for building materials without the express consent of the land owners. Even if there were trees standing in the area allotted to the tenant for cultivation, he had to leave them standing and cultivate around them unless he obtained special permission to fell them. (Kenya: UNIVERSITY OF NAIROBI)

97. Leslie, A., and Conlin, S.

Imatong Forestry Project, Southern Sudan: Subsistence Food Production in the Taungya System. Project Report 10. Surbiton: Land Resources Development Centre, 1980.

Taungya plots are granted on application and can be used for two (sometimes three) years after which the trees are too tall. Long term crops may not be planted. Outside the forest reserve rights are established by felling trees. Illegal felling of reserve trees occurs because of land shortage for which taungya is intended to be a solution. (Sudan: ICRAF)

98. Levi, John, and Havinden, Michael

Economics of African Agriculture. Harlow: Longman, 1982.

The basic system of tenure associated with the basic system of agriculture--shifting cultivation--has a communal character. Individual

farmers, and the family or other units under their authority, obtain the right to cultivate a piece of land from the head of the community. Where land is abundant, this right lasts only as long as the piece of land is being cultivated and is relinquished when the plot is left to lie fallow. A fresh plot of land that has been fallow for some time is then requested from the community's head. In some circumstances where land is relatively scarce, but fire-fallow is still practiced, it is recognized that a family's rights to a piece of land is maintained even when it is fallow. Land may revert to the community if it is considered that it has been left uncultivated for too long.

But as long as it is being "used" in whatever sense, rights to cultivate tend to be secure. It is usual that every member of the community has the right to cultivate some land. Often there is more than one kind of tenure in operation corresponding to different types of land use. Even when there are permanent rights of individual cultivation, there can be a good deal of variation in the precise nature of these rights. The effects of colonialism and changing land tenure in Zimbabwe, Uganda, Ethiopia and Kenya are examined. (ICRAF)

99. Liverage, V.

Land Tenure in the Colonies. Cambridge: Cambridge University Press, 1945.

Among the Kipsigis of Kenya natural resources were considered common goods until work had been done on them such as felling a tree for firewood. In Arabia trees were owned but could be used by others to meet domestic needs but not for commercial use. Permanent crops sometimes but not always establish the right to land as sometimes residence is required. In Sudan even a palm tree may be subject to complex fractional ownership. (ICRAF)

100. Lloyd, P.C.

Yoruba Land Law. London: Oxford University Press, 1962.

Four towns and their surrounding rural areas are considered in detail. Laws and custom governing timber sales, the rights of tenants of various kinds and members of the lineage group in regards to using land, planting and using trees and pawning and pledging trees are carefully examined. Generally, firewood and wild produce may be gathered for domestic use anywhere, although one does not enter another man's farm to gather. The system of pawning trees stems from the traditional system of pawning persons. Pawning of tree crops is usually a transaction between members of the same or neighboring compounds or villages. The usufruct of the trees constitutes the interest on the loan and the principal is repaid in a lump sum. Rights in the land are not affected. A period of two or three years is thought a fair minimum time for the loan to run, allowing the creditor to get a reasonable return, benefiting from the good harvests and not being cheated by reaping a single poor harvest. In contrast, pledging of tree crops leaves the creditor with very vague rights as the property remains in possession of the owner. An exhaustive treatment of the subject and a classic. (Nigeria)

101. Lloyd, P.C.

"Yoruba Land Law." In Readings in African Law, eds. E. Cotran and N. Rubin, v. 1, pp. 271-275. London: Frank Cass, 1970.

Three basic categories of land tenure are identified: public land--land used for a public purpose in which the community participates; allotted "private" land--land allotted to individuals and subsequently held by their descendants, together with land allotted to bodies such as churches, which do not embrace the whole community; and unallotted land--land not being used and available for present day granting to individuals. (Nigeria)

102. Lowe, R.G.

Farm Forestry in Nigeria. Paper for Technical Conference on Tropical Moist Forests. 1975.

Taungya that requires the cooperation of peasant farmers can only be practiced in limited areas, usually on forest land near existing communities. The opening up of large tracts of forest for peasant farming could be unwise because of the eventual socio-economic problems to which it might give rise. Such schemes can be hard to terminate. (Nigeria; ICRAF)

103. Lugoe, Nimrod M.

"The Former Customary Law of North Mara Area, Part II." Journal of the Denning Law Society 1 (1966), 305-313.

Both the courts and the people say that the land belongs to the village council. Colonial administrative officers demarcated village boundaries with sisal hedges, thereby preventing inter-village land disputes. (Kenya; UNIVERSITY OF NAIROBI)

104. Lumpungu, K.

"Land Tenure System and the Agricultural Crisis in Zaire." African Environment 2/3 (1977), 57-71.

Custom provides that whoever has planted trees retains the usufruct even if he is no longer working the land. Palm, coffee, and cocoa are inherited. Forest is communal property, but individual land rights can be established by clearing it. (Zaire; ICRAF)

105. Lundgren, Bjorn, ed.

Land Use in Kenya and Tanzania. Stockholm: Royal College of Forestry, International Rural Development Division, 1975.

Calculations show that between 83 and 93 percent of the projected consumption of forest products in Kenya and Tanzania from 1970 to 2000 consists of firewood. Comparisons of the water use of tea plantations and tall rain forests and pine plantations and bamboo forests are made. Possible species for fuelwood plantations are suggested. The discussion of land tenure is limited to the generalization that Kenya has moved toward privatization, and Tanzania has maintained communal tenure systems based on ujamaa villages. The difficulties with the taungya system in Tanzania when new land ran out are documented. This work provides information useful for technical questions in agroforestry. (ICRAF)

106. Mather, A.D.

Forestry for Local Community Development in Kenya: Promotion of Tree Planting for Local Community Development Especially for Rural Energy or Other Non-Industrial Uses; Kenya. Draft consultancy report. 1981

When a government forest was temporarily closed, people accustomed to taking out monthly forest Department licenses to collect firewood from dead trees and branch wood on the ground found they could meet their firewood requirements from trees in their gardens and paddocks with relative ease. Eighty-six percent of forested land is held by the government. (Kenya; ICRAF)

107. Meek, C.C.

"Law and Authority in a Nigerian Tribe." In Readings in African Law, eds. E. Cotran and N. Rubin, v. 2, pp. 312-331. London: Frank Cass, 1970.

A male member of a lineage may give to a son or daughter or sister's child a gift of economic trees or of a plantation that he owned in his own right.

108. Middleton, John, and Kershaw, Greet

The Central Tribes of the North-Eastern Bantu. London: International African Institute, 1965.

Land is held by the descent group. Rights to timber and sacred groves on lineage land are open to the whole community. The right to redeem lineage land is perpetual. Shrines to the supreme creator are sacred trees or groves of fig trees. Not all fig trees are sacred. When clearing a field, a large tree is usually left, which is believed to collect the spirits from all the other trees that have been cut in the vicinity. If the tree later dies and must be cut, a ram is sacrificed and the spirits moved to another tree. The wood may be used by old people or for honey barrels. A sacred grove may not be cut down. Emba land is held by the extended family. Beehives are frequently hung in trees in the commonage and the owner of the hive has certain rights over the ground immediately surrounding the tree. (Kenya, MEMORIAL)

109. Mikell, Owendolyn

"Cocoa and Social Change in Ghana: A Study of Development in the Sunyani District." Ph.D. Dissertation, Columbia University, 1975.

Author's Abstract: This study seeks to examine the social relationships that developed within a particular Erong social system when it was experiencing increased economic development. Using the cocoa industry as an example of an economically developing agricultural sector, the influence and implications of changing social relationships within the individual and familial level, the community level and the levels of the region and the nation-state are examined.

110. Miracle, Marvin P.

Agriculture in the Congo Basin. Madison: University of Wisconsin Press, 1967.

Trees planted can usually be owned even though the land they grow on cannot. In precolonial days, the Banda planted bark cloth trees the ownership of which they retained even when they moved. The principle motive for planting palms, fruit trees and oil bearing trees of the forest is said to be the desire to create an inheritance for future generations of the maternal clan. (ICRAF)

111. Moss, R.P., and Morgan, W.B.

Fuelwood and Rural Energy Production and Supply in the Humid Tropics. Dublin: Tycooly International Publishing Ltd. for United Nations University, 1981.

There is little problem of access if fuelwood is produced on the farmland. But charcoal must be produced in an area with relatively abundant wood. Access to forest or well-wooded lands is often controlled either by the government, private owners or even by the owners of adjacent land, which creates difficulties for charcoal makers. Individual land tenure has created fuelwood problems in East Africa. The landless particularly have access problems. (ICRAF)

112. Mukwya, A.B.

Land Tenure in Buganda. Kampala: The Eagle Press, 1953.

Peasant tenants' right to cut trees is limited to such trees as are not commercially valued and to those required for building a house for the holder. The trees planted by a holder are his own property so long as he continues to occupy the holding, but they revert to the landowners together with the improvements on the surrender of the holding. The right to collect firewood is similarly limited to such quantities as are necessary for

household purposes. These rights can only be exercised either on the peasant's own holding or on such part of the land as is not claimed by other peasants as part of their holdings. Under law, peasants have the right to cut trees and collect firewood. (Uganda; UNIVERSITY OF NAIROBI)

113. Mwaniki, Nyaga

Social and Economic Impacts of Land Reform in Mbeere. Working paper, no. 391. Nairobi: University of Nairobi Institute for Development Studies, 1982.

Adjudication has led to a shift from agropastoralism to arable production. One must buy trees for making charcoal or making beehives. The number of tenants has grown and landlessness is increasing. (Kenya; IDS)

114. Nadjombe, O.

"Taungya Practices in Togo." In Agro-Forestry in the African Humid Tropics, ed. L.H. MacDonald, pp. 70-71. Tokyo: United Nations University, 1981.

Traditional land use is characterized by the occupation of independent pieces of land by communities made up of descendants of a common ancestor. The basic principle underlying traditional land tenure is collective ownership. In 1954, taungya was introduced with tea. Farmers would grow food crops but not perennial crops. The hostility of traditional farmers toward reserving forests intensified, and resulted in massive and uncontrolled invasion of the forests by the traditional custodians. The system was abandoned and reintroduced in 1972 by the Food and Agriculture Organization. This scheme too was abandoned because crop rotation was forbidden and the two year turnover time did not allow sufficient labor input to maintain the plantation. (Togo; ICRAF)

115. Netting, Robert M.

Hill Farmers of Nigeria. Seattle: University of Washington Press, 1968.

Usufructuary rights to land cannot be alienated. Women have no right to land. The owner of land has rights to all tree crops produced on his property, and his tenant may keep on the kernels of oil palms while the landlord gets the oil.

116. Ng'andwe, C.O.M.

"African Traditional Land Tenure and Agricultural Development: Case Study of the Kunda People in Jumbe." African Social Research 21 (1976): 51-67.

Anyone can use uncultivated land for collecting firewood. The guiding principle is "natural gifts for us all--individual effort for individual benefit." Where this principle has been rigidly adhered to, there are cases in which firewood from a wild tree in a man's field has been taken by other people. It was with this principle in mind that the Bisa of Chiluba Island turned down an offer by the Northern Rhodesia government in 1957 to plant some trees where natural trees had been used up. The Bisa argued that if the government were allowed to plant "their" trees, the Bisa would lose their rights over the pieces of land involved because the government would not only have the trees but also full "individual" rights over the land. The trees could not become the property of the Bisa. The Bisa chief initially accepted the government idea, but when the people almost unanimously rejected the idea, the chief had to uphold the rejection of the offer. (Zambia; SOAS)

117. Njenga, F.X.

"African Land Tenure Concepts in Kenya in Contemporary Setting." Journal of the Denning Law Society 1 (1966): 265-283.

This article relies heavily on Bentsi-Enchill (1964), fitting Kenya customary law into his categories. Case law from Taita held that planting permanent trees establishes adverse possession. (Kenya; UNIVERSITY OF NAIROBI)

118. Norman, David W., Pryor, David H., and Gibbs, Christopher J.N.  
Technical Change and the Small Farmer in Hausaland, Northern Nigeria.  
African Rural Economy Paper, no. 21. East Lansing; Michigan State University,  
African Rural Economy Program, 1979.

People have usufructuary rights to use land within the community where they reside. This implies that land ownership is still largely vested in the community, and that the individual residing in the community has no right to alienate the land he holds. (Nigeria: ICRAF, LTC)

119. Norman, David W., Simmons, Emmy B., and Hays, Henry M.  
Farming Systems in the Nigerian Savanna: Research and Strategies for Development Boulder: Westview Press, 1982.

Land is thought of not only as a factor of production but also as a significant element in the social fabric of the community. Communal land laws give people usufructuary rights to use land within their own communities. Legislators in northern Nigeria have passed laws consistent with this concept, granting ownership of all land to the government and, in turn, sanctioning the continued allocation of land at the community level.

Under Islamic law, individual tenure is recognized. In theory, land cannot be alienated from the community, but it happens. In some villages, existing ownership or use-right agreements were abrogated by those in authority in order to reallocate to themselves the land, and thereby the benefits, of a tomato irrigation technology and tomato paste plant. The authoritarian pattern of control is used to divert resources from those who have no influence with those in power to those who do. (Nigeria: ICRAF)

120. Nshubemuki, L., and Mugasha, A.G.  
The Modifications to Traditional Shifting Cultivation Brought About by the Forest Development Project in the Hado Area, Kondoa, Tanzania. Lushoto, Tanzania: Forest Division Silviculture Research Station, 1983.

Erosion attributed to shifting cultivation is due to cutting trees and burning saplings during the anti-tsetse campaign. HADO, a soil conservation project, involved nurseries, little dams, ridge contours and tree planting. The farmers with the least erosion are the most likely to adopt soil conservation measures. A recent law forbids clearing virgin forests. A problem is that there is no room for trees on good land. (Tanzania: ODI)

121. Nsibirwa, P.L.  
"Land Tenure in Buganda." B.S. Thesis, Dar es Salaam University College, 1968.

The Kabaka (King of the Baganda) would indicate a grant of land by sending a messenger to plant a barkcloth tree on the holding. Peasants held land at the pleasure of their chief. They had the right to cut trees and collect firewood. (Ghana: UNIVERSITY OF NAIROBI)

122. Nye, P.H., and Greenland, D.H.  
The Soil Under Shifting Cultivation. Farmham Royal, Bucks; Commonwealth Agricultural Bureau, 1960.

In shifting cultivation the ownership or use right of a tract of land usually belongs to a social group. An individual farmer belonging to the group has the right to use part of the tribal land for cropping, but his interest in his plot may cease when it is abandoned to natural fallow. The thrust of the work is to demonstrate that tree fallowing in traditional agricultural systems is an effective form of land management as long as fallow cycles are long enough for soil rebuilding. This work is considered a classic.

123. O'Keefe, Philip

An Assessment of the Environmental Impact of Energy Uses: Fuel and Energy in Eastern Africa. Worcester, Mass: Clark University, 1979.

Traditionally, firewood was regarded as a free good. Access to fuelwood or forests generally depended upon customary rights to the land. The impact of modernization, especially the move to statutory, private land holding patterns, destroyed this traditional system of tenure, including access to forest resources. The form of destruction did not matter. Whether forest areas were taken over by private individuals or by the state, the action denied peasant producers usufruct rights to forest produce. The question of land tenure is crucial to the solution of drought vulnerability and peasant poverty. (Kenya)

124. Obi, S.N. Chinwuba

The Ibo Law of Property. London: Butterworths, 1963.

If economic trees are self-sown, they belong to the owner or owners of the land. But if they are planted, they are the property of the person who planted them. It makes no difference on whose land they were planted or whether the owner gave permission, bad faith apart. In normal cases, the land owner has no right to the trees or their produce, and can only ask the tree owner to cut them down if they interfere with the use of his land. If this request is refused, he has a legal right to cut them down. This happens especially when the planter is likely to lay claim to the land using the presence of his trees as evidence.

Sale or transfer (by lease or pledge) of land does not necessarily carry with it any rights or interest in economic trees growing there. In the absence of express agreement to the contrary, the vendor, pledgor or lessor of land retains full rights over all economic plants on it, including the right to go on the land in question for the purpose of enjoying these rights. Similarly, on apportionment of communal or family land, the trees remain in common ownership unless or until arrangements are made for distribution.

Economic trees are owned in perpetuity by the planter. Wild trees on an individual holding are the exclusive property of the landowner. Wild trees on communal reserve land are the joint property of all eligible members of the land owning group. Wild trees on communal farm land belong to the group unless the land is under cultivation, in which case the cultivator has exclusive rights. The direct and inheritance rights of women and infants to trees are discussed. The rights of lessors, lessees, pledgors and pledgees are discussed. The author provides a thorough, detailed and clear explanation of tree rights. (Nigeria; LTC)

125. Odingo, Richard S.

"Post-Independence Agricultural Changes in the Kenya Highlands." In Essays on Agricultural Typology and Land Utilization, eds. Jerzy Kostrowicki and Wiesława Tyszkiewicz, pp. 207-226. Warsaw: Polish Scientific Publishers, 1970.

The author summarizes the changes that were taking place in the first years following Kenyan independence in matters relating to land purchase, consolidation and registration. He contrasts the changes affecting private property and plantations. (Kenya; LTC)

126. Ogunfowora, O., and Heady, Earl O.

"Integrating Short-Term Farm Enterprises With Perennial Tree Crops: An Application of Recursive Programming to a Tree Crop Settlement in Western Nigeria." Nigerian Journal of Economic and Social Studies 73 (1973); 81-94.

In this paper, a farm planning model is applied that integrates tree crop enterprises with annual cropping activities in the Ago-Owu farm, one of 17

tree-crop settlements in Western Nigeria. Each farm is planned to contain at maturity, 10 acres of cocoa, 10 acres of oil palm, 5-10 acres of annual cropping, with associated gardens of yams and cassava and poultry production. While the paper is primarily concerned with demonstrating optimization strategies, the primary land tenure problem associated with the project is mentioned. The settlers in Ago-Owu were paid a daily wage based on work performed on their tree-crop holdings. They saw themselves as hired labor rather than as landowners, and between 1960 and 1967 more than half of the settlers had abandoned the project. The evidence indicates that clarity and security of tenure are requirements for the necessary economic motivation, hard work, and development of managerial capabilities long-term tree-crop integration requires. (Nigeria)

127. Okoth-Ogendo, H.W.O.

"The Law in Relation to Land Practices in Kenya." In Proceedings of the Kenya National Seminar on Agro-forestry, Nairobi, 1980. Nairobi: ICRAF, 1981.

Under the Land Act, woodlands are considered as auxiliary to agriculture-related purposes. If agroforestry is practiced on private land, the Forest Act cannot be brought to bear. Rather, the Agricultural Act must be relied on. Under this, trees are viewed only as agents for maximizing the returns of agricultural crops, but not as entities worthy of legal protection in their own right. (Kenya; ICRAF)

128. Okoth-Ogendo, Hastings W.O.

"Land Tenure and Agricultural Development in Kenya and Tanzania." Journal of the Denning Law Society 2 (1969), 30-72.

At independence, Kenya had a dual system of land holding--freehold/leasehold and customary tenure. The system has moved increasingly toward individualization. Tanzania had freehold, right of occupancy and customary tenure. The system has moved away from individual tenure to right of occupancy, subject to development conditions closely supervised by the administration. Individualization of tenure does not solve the problems of customary tenure. Litigation arises, along with problems of overcapitalization, peasant indebtedness and land speculation that leave land unused. The colonial roots of modern agriculture are discussed. (UNIVERSITY OF NAIROBI)

129. Ollennu, N.A.

Principles of Customary Land Law in Ghana. London: Sweet and Maxwell, 1962.

A thorough, detailed and clear explanation of customary law. All land has an owner, although different people may have different rights at the same time. By custom, every subject of a stool or member of a family is entitled to enter land controlled by that group to use natural products of the land except economic trees and products the result of human effort. No concession may be granted that does not protect the rights of indigenous people to use natural products. Existence on the land of cultivated trees is evidence that the land is owned by someone.

In all parts of Ghana where the oil palm tree and other species of palm grow, it is the owner of the determinable title in the land, and he alone, who is vested with the right to harvest the fruits, to fell the palm trees or to tap wine from them. Neither the owner of the absolute title nor the owner of the sub-absolute title can go upon the land to harvest kola nuts, palm nuts or fell palm trees for palm wine.

Six categories of title are described: paramount (absolute, final, radical, allodial) title, sub-paramount title, determinable title, tenancies in land, licenses and pledges. A pledgee can harvest the fruits of any economic tree on the land, may fell palm trees, and tap wine depending on the

title or interest of the pledgor. He may also grow economic trees such as cocoa, coffee, rubber, coconuts, and palm. If the pledgor redeems his land prematurely through early payment, he should bear a reasonable portion of the cost of improvements put in by the pledge. (Ghana; LTC)

130. Parkin, David J.

Palms, Wine and Witness. San Francisco: Chandler Publishing Company, 1972.

Describes the effects of a switch from an internal economy based on palm wine to an external economy based on copra. Palms may be pledged or sold separately from or together with the land. With the capitalization of the economy, there has been a shift from unlimited mortgages (which are perpetually redeemable) to limited mortgages which must be redeemed within a fixed period of time.

131. Pearson, Mark

Settlement of Pastoral Nomads: A Case Study of the New Halfa Irrigation Scheme in Eastern Sudan. Development Studies Occasional Paper, no. 5, University of East Anglia, 1980.

The scheme has two types of tenants--those resettled as a result of the Aswan dam who have both leasehold and freehold land and pastoralists from the area who have only leasehold land. Cultivation on the leasehold land is restricted to groundnuts, cotton and wheat. Failure to grow cotton can result in eviction from the scheme. This crop rotation does not meet subsistence requirements.

132. Pélissier, P.

"L'arbre en Afrique tropicale: La fonction et le signe." In ORSTOM, vol. XVII, nos. 3-4 (1980): 127-130.

A general review of the role and value of trees in the West African Sahel in particular. African agriculture has evolved by sedentarization and by intensification of cropping and this has not occurred by the removal of trees from the agricultural landscape, but instead by the association of trees with crops. The types of trees in the landscape are also a mark signature on the land left by a lineage or type of social organization. In many cases, these associations of woody plants are characteristic of given social groups. Trees are also a mark of the ownership of the land. Trees are property and the right of exploitation means the right to exploit the land. In some cases, tree use rights provide legal entitlement to land use. Furthermore, rental of land is conditioned by the rule that trees must not be planted by the leasee for this reason.

133. Pélissier, P.

Les paysans du Sénégal: Les civilisations agraires du Cayor à la Casamance. 1966.

Land ownership among the Wolof and the Sérér of Sénégal is originally based on the "right of fire" (droit de feu), whereby a "lamane" is the descendant of the first person to have burnt the native forest (le maître du feu) and whose land was defined by the extent of burning over a period of three to six days. On uncultivated lands, the descendant of the "lamane" extended the "right of ax" (droit de hache) which is a concession to peasants to cultivate unused but cleared land. As long as the land is cleared by the lineage with the "droit de hache" and a symbolic rent is paid to the lamane, then the land remains the property of those with the "droit de hache." Among the Sérér, Acacia albida is deliberately grown and maintained in farmers' fields. In view of the above remarks about tenure, the presence of a managed tree crop can be considered evidence of more or less permanent cultivation and thus, of the right to use the land.

134. Penwill, D.J.

Kamba Customary Law Notes Taken in the Machakos District of Kenya Colony.  
London: Macmillan and Company, 1951.

A man can hang honey barrels in trees on his own land and not in trees on anyone else's land without prior permission and agreement. If land is communally held, the concurrence of other relatives concerned is necessary. Anyone can hang his honey barrel anywhere in the commonage in any tree, provided it is not already occupied. His barrels will bear his clan marking, and by hanging them up he acquires certain exclusive rights to that tree and the area surrounding it. Nobody else may hang barrels in that tree without permission, nor may they fell or damage the tree, cut the undergrowth around it, or herd cattle or goats close to it, if that or any act is likely to disturb the bees in their hive. The right acquired is therefore an exclusive right to use that tree for honey farming and a prohibition on anyone else from doing anything that may interfere with that right. There is no question of the acquisition of any right to the land or to the grazing. The rights so acquired are rights of use, but they are permanent and inheritable as long as usage is maintained. Once the barrel falls or is removed from the tree and not replaced, the right lapses. Deliberate damage to growing crops or trees is a recognized method of asserting a claim of right to the land on which they are growing. The act will be followed by a civil land dispute before the value of any compensation is assessed. (Kenya SOAS)

135. Perlove, Diane Catherine

"Fuel Use and Fuel Conservation: An Investigation Among Highland Samburu." In Wood, Energy, and Households: Perspectives on Rural Kenya, eds. Carolyn Barnes and Jean Ensminger, Forthcoming.

Women only collect wood from dead trees and greatly disapprove of felling green trees. No one in the region owns particular trees in the forest reserve, even when they have chopped and piled the lot they intend to use as firewood. However, customary ethics dictate that if a woman comes upon a neat pile of chopped wood, she does not take it, assuming that it has been collected by one of her neighbors. No formal community regulation exists with respect to conserving the forest resources. A woman takes as much wood as she wants, and is believed to want as much wood as she needs. Neither neighbors nor elders restrict a woman's use of firewood. Nor are there any traditional committees that regulate the amount or types of wood cut down from particular forests. Informal regulations prohibit foreigners from making charcoal, and discourage the Samburu charcoal makers as well. (Kenya)

136. Perriault, Paul Thomas

"Banana-Manioc Farming Systems of the Tropical Forest: A Case Study in Zaïre." Ph.D. Dissertation, Stanford University, 1978.

Author's Abstract: This research was meant as a first step toward increasing understanding of farming systems involving bananas, a crop much too neglected in the literature of tropical agriculture. A principal objective of this research was to provide a set of parameters, as well as a description of the context in which such farming takes place, giving particular attention to the competing demands for labor within the household.

Forty-five households were chosen in three villages around Kisangani, a city located in the heart of the Forest of Zaïre. Data were gathered, through bi-weekly visits, on the total allocation of daylight time for each member of the households. All farming operations as well as non-farming activities were covered. Data were also collected on outputs, sales, purchases, hired labor, areas cropped as well as personal history of head of households.

A major finding has been the identification of some of the methodological difficulties involved in the study of shifting cultivation. Man's intervention of any given plot of forest land was found to be not less than two years. Thus, to quantify input-output relationships on the basis of one

year of observation required some regularity in the agricultural process. Such regularity was found in only one village for which it was possible to estimate labor input with reasonable accuracy. However, it was not possible to significantly relate yields to weeding labor, to original plant density, or to duration of operations on the basis of such data. Setting up such relationships will require the collection of observations over the whole period during which the fields are under cultivation.

137. Fogucki, R.J.H.

"Gold Coast Land Tenure." In Readings in African Law, eds. E. Cotran and N. Rubin, v. 1, pp. 351-355. London: Frank Cass, 1970.

Rights to collect firewood are unqualified only in so far as the collected wood is used for domestic use by the collector. There is no common right to collect such wood for trade. In some areas, planted shade trees are excluded from the exercise of common rights in firewood. There are qualified rights to sticks for building, if the sticks are used only for building a house for the collector. However, if such sticks are large enough to be treated as timber, the right becomes a distinct alienable right and cannot be exercised even for building the house of the collector.

Trees can be alienated distinctly from the land on which they grow. It is generally accepted in the hill belt that trees always belong to the landowner, and that tenants may base rights in trees upon the tenancy agreement alone. Where the cultivation of coconut palms has developed, it is accepted that such trees are owned by the planter. In some areas, a distinction is made between self-growing and planted trees. The first are regarded as belonging to the landowner, the second to the planter. In some areas, a distinction is made between fruit trees of economic importance and other trees, the first being the property of the land owner. Elsewhere, fruit trees of value and shade trees are regarded as owned by the planter. In some areas, the landowner may require the tenant to plant palm trees. In return, a third of these trees are granted absolutely to the tenant by the landowner. In all areas except the coconut areas of the Volta River estuary, the title of land always involves the sale of all trees growing on the land as distinct from a lease or loan of land, in which cases the trees and their fruits will remain the landowner's property. Extracted from a 1955 publication. (Ghana)

138. Poulser, Gunnar

Malawi: The Function of Trees in Small Farmer Production Systems. Rome: Food and Agriculture Organization, 1961.

"Protected trees" which in principle remain the property of the government sometimes grow on the land of smallholders. Villagers have access to unoccupied land where they may graze animals and collect fuelwood and timber whereas trees in graveyards are preserved. Laws and regulations require tobacco growers to reforest on a scale sufficient to cover their fuel requirement for flue curing, but many do not. Failing to reforest is a major cause of deforestation in some regions. Smallholders may get some fuel from mango trees on their land, but otherwise must depend on crop residues or remote scrub. Trees tend to be concentrated around houses, as arable land cannot be spared. (Malawi: ICRAF)

139. Prins, A.J.

The Swahili-Speaking Peoples of Zanzibar and the East African Coast. London: International African Institute, 1961.

Ordinary shambas under trees are not usually owned in tenancy. A freehold owner leases his trees, not his land, to the lessee paying rental per tree. The acreage of such land is usually not stated, the number of trees per shamba (field) being solely of account. Unlimited freehold possession is a late eighteenth century corollary of the introduction of permanent tree crops such as cloves and coconuts on a large scale of commercial use. (Tanzania: SOAS)

140. Rald, Jorgen, and Rald, Karen  
Rural Organization in Bukoba District. Uppsala: Institute of African Studies, 1975.

Over time, there has been a gradual shift from usufructuary ownership to proprietary ownership. Trees form a new cash crop because of the increasing shortage of firewood. A plot of clan land can be acquired only by inheritance, and transfer to others than heirs can only be done with the consent of the nearest members of the clan. Uncultivated land converted to perennial crop land can be freely disposed during the owner's life time, but at the owner's death it reverts to clan tenure. The mechanism of inheritance is to expand clan land and stress the importance of perennial crop land, which is the bearer of both the main food crop and the main cash crop. Pledges and mortgages, often followed by land transaction, have become common. At the same time, with the development of the cash economy, selling land has emerged. Daughters may acquire land from their fathers. The inheritance system limits the expansion of land through purchase to the lifetime of an individual. Property division will take place when the individual dies. The norms of society and the clan structure to land use and land tenure prevent individual economic land speculation. (Tanzania; ICRAF)

141. Rutray, E.S.  
Ashanti Law and Constitution. London: Oxford University Press, 1956.

In the old days, besides giving his child the use of a plot of land to farm that eventually reverted to the father's totemic clan, an Ashanti father might make a gift of trees to one or more of his children. Such a gift, on the death of the donee, belonged to his heirs. This gift did not, however, confer any title whatever to the land upon which the trees grew. New villages considered uncleared forests as belonging to the stool. Crops and the fruits of kola, plantains, and palm oil grown on the clearing became the joint property of the kindred group that had assisted in clearing the virgin forest land on which they grew. An original cultivator or his heir could reclaim an abandoned plot that he had once cleared and cultivated only by pointing out some trees--kola, plantain, palm oil--which he had once cultivated and which still grew and bore fruit. First published in 1929. (Ghana)

142. Riddell, James C.  
Causes of Deforestation and Forest and Woodland Degradation in Tropical Africa. Washington, DC: U.S. Office of Technology Assessment, 1987.

A commissioned background paper as part of a series on major problem areas of tropical forest resource preservation and development. The author argues that the future of Africa's forest resources is tied to agricultural and food production. Agroforestry techniques are offered as one promising area of combining agricultural development with forestry. (LTC)

143. Riddell, James C.  
 "Organizing Kin and Non-Kin in a Finite Labor Situation." In Economic Studies in Sierra Leone and Liberia, eds. U.R. Dorjahn and B.L. Isaac. Newark: University of Delaware Press, 1979.

People have used communal land to plant coffee and cocoa. People from clans that have lost land to a rubber plantation have been able in some instances to borrow land to plant in tree crops. Because of a reluctance to allow outsiders to plant trees, most borrowed land is now planted in sugar cane. People have wage employment to tend to their cash crops. (Liberia; LTC)

144. Roberts, Simon, Campbell, Alec C., and Walker, J.M.

The Maletle Law of Family Relations, Land and Succession to Property.  
Gaborone: Government Printer, no date.

Trees on land not allotted for residential or agricultural purposes belong to the tribe. Such trees may be cut and their fruits harvested by any member of the tribe. Trees on allotted land belong to the holder. He is exclusively entitled to cut such trees and harvest their fruits. Trees may not be sold, but the furniture made from them may. No residential shade tree may be cut down without the permission of the chief. No living tree may be cut for firewood. No person may collect firewood on land allotted to another without permission. No person may collect the fruit of trees on land allotted to another without the other's permission, unless the tree is on agricultural land not ploughed during the season. Certain trees cannot be cut between the beginning of ploughing and the end of harvest. During the same time, all other wood may only be cut before 10:00 am or after 4:00 pm. (Botswana: SOAS)

145. Rocheleau, Dianne, and van der Hoek, Annet

The Application of Ecosystems and Landscape Analysis in Agroforestry Diagnosis and Design: A Case Study From Kathama Sub-Location, Machakos District, Kenya. Working Paper no. 11. Nairobi: ICRAF, 1983.

The severe gully and sheet erosion in the study area requires a larger-than-farm solution. A watershed-scale landscape design is proposed for implementation by individual landowners as well as by community groups. Tree tenure is a key issue in introducing agroforestry production systems into gullies that span several farms and affect many more. At present, trees planted in reclaimed gullies by self-help groups belong to the owners of the adjacent property. Formal contracts are proposed to apportion tree use rights between the affected landowners and those who perform reclamation and tree planting tasks.

146. Roscoe, John

The Bagesu. Cambridge, England: The University Press, 1924.

The clan held land to which individuals had usufructuary rights. The only fuel used for fires, both for warming the houses and for cooking, was wood, which was plentiful on the mountain. (Uganda: MEMORIAL)

147. Routledge, W. Scoresby, and Routledge, Katherine Pease  
With a Prehistoric People. London: Edward Arnold, 1910.

At the time the authors were writing in 1910, they state that woodland is generally non-existent, the country having been denuded of trees. Some coppices are reserved for timber and are said to be the property of the chief or the elders. One clan is bound by filial duty to preserve certain lands as woodlands. Fuelwood is exceedingly scarce. Wild fruits are gathered by any passerby. (Kenya: UNIVERSITY OF NAIROBI)

148. Sarbah, John Mensah

Fanti Customary Laws. Third edition. London: Frank Cass, 1968.

Under the system of the village community, the land belonging to the village is so held that all the inhabitants of the village each have a proportionate share. Burial groves are clan property. However, where there are palm trees on the land, whether planted by the owner of the land or by the tenant, the land owner has full right at any time he pleases to cut trees or gather nuts. Custom does not permit any person to be improved out of his land, and palm trees not only improve, but also enhance land value. When the nuts from a palm land are manufactured into oil, the owner of the land receives half the oil and the manufacturer the other half, and the expense is shared equally. When palm wine is made, the owner and the maker each get a

quarter and the seller a half. Abehem tenure arises when a person is placed on palm land with the stipulation that a specified quantity of oil be delivered to the owner each year, whether the tenant makes any oil or not. The owner of land covered with timber is entitled, in absence of express agreement, to one-third of the logs, beams, and other timber felled or gotten off his land. First published in 1897. (Ghana)

149. Schapera, Isaac

"Native Land Tenure in the Bechuanaland Protectorate." In Readings in African Law, eds. E. Cotran and N. Rubin, v. 1, pp. 279-348. London: Frank Cass, 1970.

Wood, grass, clay, earth, wild edible plants and other natural products can be collected by anyone anywhere. Trees and bushes from which wood is used for building, fencing, making fire and other purposes, are common property and can be cut down freely in any part of the territory subject to the following restrictions. Trees, bushes, and stumps may not be cut or removed from another man's field without his permission. Further, trees in the immediate vicinity of a village or in the village itself, even in a man's own homestead, may not be cut without the permission of the chief. Fruit trees are also common property and their fruits may be taken freely by anyone. But oranges and other cultivated fruit trees enclosed within a homestead are private property, and to take their fruit without permission is regarded as theft. There is a taboo season on cutting certain trees. Extracted from a 1938 publication. (Botswana)

150. Schapera, Isaac

Native Land Tenure in the Bechuanaland Protectorate. Capetown: The Lovedale Press, 1943.

Wild trees, bushes and other plants are treated as private property only if they happen to be growing on a field or in a domestic court yard. They are then held to belong to the person on whose land they are, and without his permission they cannot be cut nor their fruits harvested. Apart from this, nobody has exclusive or even preferential rights over any form of natural vegetation; all the plants that are used, no matter for what purpose, are available equally to all members of the tribe. Moreover, people may cut or take as much as they wish, not only for their domestic requirement but for disposal to others. It is a general rule that trees growing in or immediately around a village may not be felled without the permission of the chief or village headman. Among the Nqwato, Kgama also prohibited the cutting of trees along river banks or in big forests. Formerly it was also taboo in every tribe to cut certain trees while the young crops were maturing. (Botswana: SOAS)

151. Schapera, Isaac

Tribal Legislation Among the Tswana of the Bechuanaland Protectorate. Monographs on Social Anthropology, no. 9, London School of Economics and Political Science. London: Percy Lund, Humphries and Co. Ltd., 1943.

Chief Bathoen I of the Bangwaketse prohibited foreigners from cutting wood. In 1912, Chief Seepapitso I prohibited cutting trees on Kanye hill. In 1915, he prohibited gathering or cutting wood for export without permission. Kgama the Great prohibited cutting any trees in Serowe and certain large timber trees in other areas in 1913. (Botswana: SOAS)

152. Schapera, Isaac

A Handbook of Tswana Law and Custom. Oxford: International African Institute, 1955.

Tree and bush wood used for building, fencing, making fire and other purposes are in effect common property and can as a rule be cut down freely in

any part of the tribal territory. The chief gets no payment of any kind from the people for the use of this wood. Trees, bushes, and stumps may not be cut or removed from another man's fields without his permission. Trees in the immediate vicinity of a village or in the village itself, even in a man's own homestead, may not be cut without the permission of the chief. It is also said that if a man cuts down a big tree immediately above his own homestead, "he will be cutting down his own home." Wild fruit trees and fruit bearing bushes are also common property and their fruits may be taken freely by anyone. But oranges and other cultivated fruit trees enclosed within a homestead are private property, and to take their fruit without permission is regarded as theft. (Botswana; MEMORIAL)

153. Scott, Gloria

Forestry Projects and Women. Washington, DC: World Bank, 1980.

Some land and tree tenure systems adversely affect the share of firewood resources gained from tree planting and forest land management that flow to women, directing them instead toward the men of the society who then will apportion them to women. Other tree tenure systems, although unique, produce the opposition result--private land owners cannot refuse women access to trees on their land for use as firewood. As forest laws are being revised in some areas giving provision for the right to manage forests to be vested in the local village community, women's access and use should be considered. (USAID/NAIROBI)

154. Seif el Din, A.G.

"Agroforestry Practices in the Dry Regions." In Proceedings of the Kenya National Seminar on Agroforestry, ed. Louise Buck, pp. 419-434. Nairobi: ICRAF, 1981.

Under private land tenure in Niger, farmers are discouraged from planting trees because the forest regulations in the country do not permit tree ownership by individuals. Gum gardens in the Sudan required seven-year fallows associated with shifting cultivation. (ICRAF)

155. Shamba, M.M.

The Problem of Land Ownership and Cashewnut Claims in Malindi Coastal Belt. Kalifi, 1972.

In 1912, Arab land holders were issued freehold title, and their slaves became squatters on freehold land. They received a small wage and paid rent for their own land for farming. In 1937, cashews were introduced as a cash crop. In Malindi, squatters began planting cashews, which the landowners disliked since the amount they received in rent was far less than the return from cashews. In 1937, the following agreement was made between the Arab landowners and the African squatters: 1) Squatters could plant cashews. 2) Squatters would continue to pay rent and would harvest and sell their own cashews. 3) The children of a squatter would inherit his/her trees provided they continued to pay rent on the land. 4) If the land owner died, the rent would go to the heirs. 5) If a squatter wished to sell his cashew nut trees, he must sell them to the land owner, but if the latter was unable to buy the trees, any other person could buy them provided there was proper consultation between the landowner and the prospective buyer. 6) If a squatter having owned cashew nut trees and having no children died, the crop became the property of the landowner. In 1957-58, the Arabs, fearing a coastal version of Mau Mau, began evicting tenants. As a result, 296 cases went to arbitration. Of 11 sample cases, two were awarded to the squatter, seven to the land owner and in two the trees were divided between the two. (Kenya; ICRAF)

156. Sheddick, V.

"Land Tenure in Basutoland." In Readings in African Law, eds. E. Cotran and N. Rubin, v. 1, pp. 332-334. London: Frank Cass, 1970.

Fuel, grasses, building timber, clay, wild plants and wild animals are held in public tenure. (Lesotho)

157. Snell, G.S.

Nandi Customary Law. London: MacMillan and Co. Ltd., 1954.

If an outgoing cultivator leaves visible evidence of his intention to return--for example by maintaining a perimeter fence or planting wattle trees on or around the plot--he retains his occupancy rights while not actually cultivating it. The trees on a plantation sown and tended by an individual are recognized as his private property to use or sell. Felling communal indigenous trees is controlled by law. New occupants are expected to pay for trees on the land. Anyone is obliged to plant a certain number of trees annually when directed to do so by the chief. (Kenya: SOAS)

158. Snyder, Francis G.

"L'acculturation juridique du droit forestier au Senegal et en Côte d'Ivoire." African Law Studies 3 (1980): 53-70. (Legal Acculturation of Forest Rights in Senegal and Ivory Coast)

Among the Diola of the Casamance the forest is divided conceptually into sacred and profane. The sacred is under the trusteeship of a priest and no one uses it without permission and payment. The profane forest is controlled by village quarter elders or by extended families in areas of high population density. Where there is no land pressure the village controls access to profane forests. Although forests are collective property, trees of commercial value (e.g., palm) can be individually owned.

Traditional rights, which the authors calls oral law (droits oraux), are the evolutionary result of different processes than those that stimulate newer national forest legislation. The relationship between these two legal systems must be understood if local populations are to support and benefit from forestry efforts.

159. Stokes, J.S.

Forest Legislation Swaziland Part II: Revised Parts, Comments and Explanations. Mbabane: Ministry of Agriculture, 1979.

Under Part B of the law, Control of Tree Planting, it is forbidden to plant commercial trees on agricultural or intermediate land without the permission of the Permanent Secretary of the Swaziland Ministry of Agriculture. In deciding whether to grant a permit, the Permanent Secretary shall act on the principle that agricultural land ought to be utilized for agricultural production. In the case of marginal land, permits should be issued unless the trees interfere with agricultural production. Trees planted without permission may be destroyed at the owner's expense. In forest lands, free use permits may be issued for harvesting timber for agricultural purposes and for using firewood for domestic purposes.

160. Stopford, J.G.B.

"Glimpses of Native Law in West Africa." Journal of the African Society 1 (1901): 80-97.

Only neighborhood people may reap the palm trees that grow there on their own. Strangers are forbidden to do this. (Nigeria: SOAS)

161. Swanson, Richard Alan

Gourmantche Agriculture, Part 1, Land Tenure and Field Cultivation.  
United States Agency for International Development. "Integrated Rural  
Development Project, Eastern ORD, BAEP, Upper Volta Contract AID-686-049-78." 1979.

Land never cultivated belongs to no one, and personal and permanent rights can be established simply by putting it under cultivation for the first time. Land is never sold, but is loaned out. Lands are not owned by the village or chief, but by individuals as members of larger kinship groupings. Women do not own land. Sons who inherit their grandfathers' land through their mothers must press their rights by cultivation, planting trees or picking locust beans, or they will lose the land. Ownership of land is seen as separate from ownership of the standing crop.

Farmers are not usually permitted to plant trees on borrowed land. To plant trees is to establish ownership of those trees and the land shaded by them. The mango tree is the only tree considered worth planting and caring for. It is believed that trees should be purchased, as trees given freely belong permanently to the person upon whose land they are found. New trees that might come up while the land is being borrowed remain the owner's property. In some places fig, tamarind, ronivea palm and certain baobab trees have come to be considered the exclusive property of those on whose land they are found. Elsewhere, the fruit of these trees are available to whoever wishes to pick them. Borrowed land is the source of most disputes, which often arise from borrowers trying to plant trees. Ninety-one percent of 311 land holders said they would not allow borrowers to plant trees. Those who said yes thought they would still own the land although the tree would belong to the planter. Several case studies on disputes over planting trees are provided.

162. Swedish International Development Authority

Ethiopia Forest Industry. Mimeographed. SIDA, 1964.

The report identifies land tenure as one of the basic problems in land use. It states "the rapid carrying out of the Land Reform is an essential condition for the development of the country's agriculture and forestry. To embark upon a forestry project without first having solved the ownership problem for relatively large key areas would seem to be meaningless." (Ethiopia)

163. Tanner, R.

"Land Rights on the Tanganyika Coast." African Studies 19 (1960): 14-25.

Strangers would be prevented from planting coconuts. The allocation of a large area for a non-African cattle ranch on a long lease caused little local objection, but when the company planted coconuts as shade for its animals, it seemed to the whole village, who regarded themselves as the primary right holders of this empty bush, that the company had gone against the original agreement, under which they were classed as immigrants, because they had planted permanent crops without prior permission. It seems unlikely that the village would have agreed to this alienation in the first place if palm planting had been projected from the start, unless the company had been prepared to make a private payment to them in recognition of the abolition of their primary rights. Almost as large a number of women own palms as men because of inheritance under Islamic law. The land and the trees on it may be considered separate entities and even under conditions of purchase and sale, it is possible that the land is not sold but only the right to cultivate it indefinitely. (Tanzania; SOAS)

164. Tate, H.R.

"The Native Law of the Southern Gikuyu of British East Africa." *Journal of the African Society* (1910), 233-254.

It is not permitted to collect firewood or break off branches or cut wood in sacred groves. (Kenya; UNIVERSITY OF NAIROBI)

165. Taylor, G.F. II, and Soumare, M.

"Strategies for Forestry Development in the Semi-Arid Tropics; Lessons from the Sahel." Paper presented at "Let There be Forest" International Symposium on Strategies and Designs for Afforestation, Reforestation and Tree Planting. Wageningen; Agricultural University, 1983.

Points out the need for a careful understanding of land tenure, tree tenure and the multiplicity of uses and use rights in designing projects. (ICRAF)

166. Thomson, James T

"Public Choice Analysis of Institutional Constraints on Firewood Production Strategies," in C.S. Russell and N.F. Nicholson (eds.), *Public Choice and Rural Development*. Washington, DC; Resources for the Future, 1981.

Project planning may encounter the following problems. Land tenure, tree tenure, and associated residential patterns which may a) blunt farmers' interest in wood production if they don't own the land they farm and b) affect ease of protecting trees and thus choices between woodlot and on-field production scheme; feasibility of protecting trees from foraging livestock; feasibility of protecting trees from unauthorized cutting; enforceability of property rights in land which affects the risk and advisability of going into such a slow-maturing crop as trees; enforceability of property rights in trees, i.e., damage remedies when protection fails. Land and tree ownership do not always go together. Disincentives for producer; common property trees can be reduced by subdividing common property trees into exclusive units allocated to specific user communities. (ICRAF)

167. Thomson, James T.

Participation, Local Organization, Land and Tree Tenure: Future Directions for Sahelian Forestry. Club du Sahel/OECD, 1982.

This is a report prepared for the Club du Sahel, Paris office, outlining the necessity and benefits to be derived from more local control over natural resource development. In spite of a dearth of success, national and international agencies tend to insist on a top-down approach. Land tenure in regard to trees and woody plant ownership needs to be revised as population pressure has placed demands unanticipated by the traditional or national forest codes. This has led to an unacceptable level of ambiguity about control, use and management rights over trees. The author proposes that rights over trees become more private and enforceable at the local level. Rights over trees must be compatible with land tenure if serious dislocations are to be avoided.

168. Thomson, James T.

"Peasant Perceptions of Problems and Possibilities for Local-level Management of Trees in Niger and Upper Volta." Paper presented at the African Studies Association Annual Meeting, Philadelphia, October 15-16, 1980.

Surveys in Upper Volta villages showed trees are owned by their planters. Natural regeneration belongs to the owner of the land. Deadwood may be collected anywhere by local residents but the owner's permission is required before a living tree may be lopped or felled. In Niger villages any trees were legally the property of the Forest Service and could only be cut if a permit was purchased. Rights over dead trees are subject to confusion. Since the 1970s drought, trees located on private fields have ceased being common property and are being claimed by the owners of the fields.

169. Tibaijuka, Anna Kajumulo; Lundgren, Bjorn, or Larsson, Staffan  
Kenya: A Study of the Agricultural Sector. Uppsala: International Rural  
Development Center, 1981.

A historical review of land tenure and land transfer concludes that what took place at independence was for the greater part a simple transfer of ownership from Europeans to rich Africans. The forest sector is examined in technical detail. (Kenya: ICRAF)

170. Tiffen, Mary  
Economic, Social, and Institutional Aspects of Shifting Cultivation in  
Humid and Semi-Humid Africa. Rome: FAO, Forthcoming.

In almost all societies, families have an absolute right to the fruits of their labor on their land. This includes planted trees. Planting trees by a tenant, therefore, tends to give him permanent rights, at least to a continuing tenancy. If land scarcity begins, leases restrict the right to plant tree crops. Government schemes can add to local land shortage, as seen in an Ivory Coast Forest Reserve that created a shortage of land suitable to tree crops. A fear that government would alienate land to large-scale plantations or introduce land registration titles was believed to be one reason why immigrants and local people in a lightly populated forest zone in Southwest Ivory Coast preferred large, extensive holdings. They could get the same revenue from three hectares of well-maintained cocoa trees or, with less work, from 8 to 10 hectares of unmaintained trees. The latter had the further advantage of giving them rights over a larger land area. In Sierra Leone, loss of gathering rights of raffia palms followed the development of swamp land. (ODI)

171. Turner, Stephen D.  
Land and Trees in Lesotho. 1983.

Colonial and independent government authorities have been attempting afforestation schemes in Lesotho throughout the 20th century--initially for soil conservation, with more recent supplementary emphasis on fuelwood and other uses. Community acceptance has generally been poor, but is now slowly improving. It is argued that this gradual acceptance of afforestation is inversely correlated with the degree to which the population subsists on crops and stock. Marginalization of agriculture may mean better chances for trees.

172. Uchendu, Victor, and Anthony, K.R.M.  
Agricultural Change in Geita District, Tanzania. Nairobi: East African  
Literature Bureau, 1976.

Legal rights to land by individuals are permitted only if such land is put to productive use. The granting of rights of use is vested in the government or, where land is held under local law and custom, the local community. Land cannot be sold, nor can it be used as collateral or security for debt or a loan. Traditionally, the land belonged to the community and was allocated by the chief or village headman. The continued enjoyment of land rights implied consideration of the interests of others in the community and a community could force an individual out. Borrowing land is common. Land can be inherited.

173. Uzozie, L.C.  
"Tradition and Change in Igbo Food Production Systems: A Geographical  
Appraisal." Ph.D. Dissertation. University of London, 1979.

Forests belong to the group. Land is redistributed annually among the males. The resulting tenure insecurity tends to limit planting perennial crops including trees. One old man explained why there were few trees on his land: "This land on which my family and I live was given to my father by a

relative. His sons cannot now eject us easily but they have a right to any fruit trees on it. Why must I allow any such trees to grow or plant them?" (Nigeria; SOAS)

174. Wagner, Gunter

Bantu of Western Kenya With Special Reference to the Vugusi and Logoli, v. 11. London: Oxford University Press, 1970.

Based on 1934-35 field work, the land owner had full control of the trees on it. One who stayed on land also had ownership rights over trees growing on his land once he was fully established. Trees could be sold to a third party when the land was sold. One who was sharing the land had no rights to cut trees on the land assigned to him unless he obtained the owner's permission. On public grazing lands, no trees could be cut that provided shade to cattle or were used by the stock to rub their backs against. Nor were people permitted to place honey barrels in such trees, as the bees might sting the grazing stock. Trees growing on surplus clan land were looked upon as clan property. On such lands, clansmen could fell any trees they needed for building or for manufacturing household objects. sacred groves and certain shade trees were protected. (Kenya; SOAS)

175. Weber, Fred, and Hoskins, Marilyn

Agroforestry in the Sahel. Virginia Tech Participatory Development Program. Blacksburg, Virginia Polytechnic Institute, 1983.

A major issue is the lack of guarantees of future benefits to those who make improvements. Ownership rights to trees or to continued use of improved parcels of land are often ambivalent. Individual and family initiative to undertake long-term improvements, in the form of tree planting or soil conservation activities is limited by lack of confidence in being able to profit from them. Planting trees without being sure of profiting from them once they are grown is nonsense to Sahelian farmers. Laws, decrees or revisions of existing regulations must be made to guarantee benefits. (ICRAF)

176. Weiser, Peter Fowler

"Change in Traditional Agriculture: A Study of Three Towns in Northern Liberia." Ph.D. Dissertation, University of Oregon, 1972.

Author's abstract : Analysis is undertaken with regard to possible effects of a number of economic, social and institutional variables on the extent to which farmers in three towns in northern Liberia have moved out of the production of the time-tested subsistence crops of rice, cassava, eddoes, and various greens, and into some commercial production of coffee, cocoa, and sugar cane. It tests the hypotheses suggested by T.W. Schultz, that economic variables (reflecting relative profitability) dominate in the transformation of traditional agriculture, and by E. Rogers et al., that various cultural values and social attitudes may play an important role in this transformation. In addition, it looks at certain institutional forms, which may be active as constraints to or facilitators of change.

Preliminary results indicate that economic incentives alone do not satisfactorily explain the difference between the farmers sampled who do the least amount of cash cropping and those who form the middle group, i.e., those who have begun to cash crop, the income from which amounts to 25 percent to 40 percent of their total farm income. While these two groups have parallel economic opportunities in the form of equal availability of technical information, they differ significantly in such attitudes as risk aversion, economic goal orientation, and the value placed on the continued production of the staple crop, and face different land tenure systems and institutions, which affect the allocation of labor. These influences better explain the differences in cash cropping between these groups. Those farmers who do the greatest amount of cash cropping, however, appear to have been greatly influenced by economic incentives in the form of better technical information, more sophisticated farm inputs, and a more favorable pricing structure for their output.

From these relationships, it is suggested that unless the appropriate attitudes and institutional arrangements are also present, the existence of the standard economic incentives may not be sufficient to induce farmers into cash cropping.

177. Whitsun Foundation

Rural Afforestation Study. Salisbury; Whitsun Foundation, 1981.

Vegetation type is analyzed by tenure type. In the former trust lands, the most efficiently managed wood lots were individually owned. Wood lots managed by the central government were reasonable, while council wood lots were poorly managed. Because of land hunger, it is proposed that trees be planted on roadsides, field boundaries, unused areas around houses and areas unsuitable for grazing animals or marginal for producing crops. (Zimbabwe)

178. Wilson, Gordon M.

Luo Customary Law and Marriage Laws Customs. Nairobi; Kenya Colony and Protectorate Government Printer, 1961.

Common materials not planted by anyone were regarded as communal property. These included thatching grass, building poles, firewood, potter's clay, salt and soda deposits, wild fruits and aloe. Although these laws are followed throughout Luo by the majority of the people, a significant minority is now beginning to question the right of their fellows to take grass and building poles; in a few places where firewood has a market value, certain individuals have claimed such trees as individual property. (Kenya)

179. Winterbottom, Robert T.

"Reforestation in the Sahel: Problems and Strategies. An Analysis of the Problem of Deforestation and a Review of the Results of Forestry Projects in Upper Volta." Paper presented at the African Studies Association Meeting, Philadelphia, PA, 1980.

Reforestation projects are more successful where land pressure is not excessive. (ICRAF)

180. World Bank

Rwanda Integrated Forestry and Livestock Development Project. Washington, DC; World Bank, 1980.

By law, all land in Rwanda belongs to the government. Unused and uncultivated land can be used by the government for any purpose. However, most landholding is actually governed by both traditional law and modern regulations. Traditional land tenure practice allows individual usufruct rights to continuously cultivated land. All pasture is communally held. Most cultivated land can be passed on to heirs; it is rarely sold for cash. Farmers in organized settlement schemes enter into a contract with the government, which grants them the use of a two hectare plot; the settlers may not subdivide their plots among their children. Cultivated land with only usufruct rights may be acquired by the government, in which case compensation is paid on the basis of the crops planted, type and number of trees, type of dwelling and so on. Other land, however, may be taken without compensating the local community.

LATE ADDITIONS

181. Kaberry, Phyllis M.

Women of the Grassfields: A Study of the Economic Position of Women in Bamenda, British Cameroons. London: Her Majesty's Stationery Office, 1952.

Based on 1945 field work, this study illustrates the pressures on traditional land tenure systems arising from commercialization of agriculture. Three systems of land tenure are described.

182. Banneh, George

"The Huza Strip Farming System of the Krobo of Ghana," in Jerzy Kotrowski and W. Tyszkiewicz (eds.), Essays on Agricultural Typology and Land Utilization. Geographica Polonica 19, 186-207, 1970.

The Krobo of the Ga-Adangbe ethnic group in Ghana began during the last century expanding out of the Akuse plain on to the Akwapim Ranges to the North. These hill lands, though largely unoccupied at the time, were claimed and actively defended by various Akan groups. In the middle of the last century the Krobo chief Nene Sakite negotiated for the purchase of a tract of land. By the end of Nene Sakite's tenure the idea of acquiring land had firmly taken hold. After this, land was purchased from Akan chiefs by small groups of Krobo called Huza (company).

This work, which is complementary to the earlier works of Hill (1963), La Anyane (1956) and Field (1943), focuses on one company. It covers the purchase of land, the division into strips, fragmentation, rental and changes of land use and the history of boundary adjustments. At death the land is divided equally among wives and devised patrilineally to the children of each wife regardless of the number of offspring. Unmarried daughters abrogate any claim at marriage. At the time the article was written the oil palm and cocoa boom had ended and maize was the principle cash crop. (LTC)

183. Banneh, George

"Dynamics of Land Tenure and Agrarian Systems in Africa: Ghana Case Study." Paper commissioned by FAO/Rome, 1984.

A commissioned study of three contrasting land tenure situations in Ghana. The regions covered are the shallot farmers of the Southeastern Coastal Savanna, the rice farmers of the Northern Region and the cocoa farmers of Wassa Akropong area. The latter is a pioneer zone where outsiders began to enter in the early parts of the century and purchased land from the indigenous Wassa. As the profitability of the land was realized by the next generation of Wassa, they began to resist land sales and engage in various forms of sharecropping and rental. Today, the Wassa comprise only 37 percent of the population. Twenty-two percent of the land is held by purchase agreements on the part of persons originally from external ethnic groups. These purchases have served to strengthen traditional tenure and any further alienation is resisted both in the community and through the courts. (LTC)

184. Goudet, J.P.

"Equilibre du milieu naturel en Afrique tropicale sèche," Nogent-Sur-Marne, Centre Technique Forestier Tropical, 1984.

A study of the limitations to woody plant production in the Sahel. The author stresses the importance of establishing woody plants as part of the farming and pastoral systems of the people in the region. One paragraph is devoted to the need for land tenure reform, but the type of reform is not given in any detail.

185. Depommier, D. and J.P. Goudet

"Agroforesterie: Foresterie et systèmes de production, étude de cas,"  
Nogent-Sur-Marne, Centre technique Forestier Tropical, 1983.

The work is divided into two parts. In part one there is a systematic description of the agroforestry forms and issues. Examples are drawn from all parts of the world. The second section is a report on the results of studies done in Cameroun, Ivory Coast, Burkina Faso, Niger and Senegal. Tenure issues are mentioned most briefly in passing, such as private forests in West Cameroun. The major emphasis is on examples of implementation.

186. Bailly, C.; C. Barbier, J. Clément, J.P. Goudet, and O. Hamel

"Les problèmes de la satisfaction des besoins en bois en Afrique tropicale sèche." Bois et Forêt des Tropiques 197: 23-43, 1982.

A study of the factors that will play a role in attempts to provide the necessary wood needs of the populations of the Sahel. The study discusses plantations and irrigated wood lots. Tenure issues are discussed in an analysis of the role of agroforestry in rural economy. The authors found that trees planted along roadways and boundaries had a good chance of survival, but attempts to establish village wood lots lead to conflict. They emphasize that success will depend on how well trees are integrated into the local economy.

ASIA

1. Agricultural Information Development Bulletin  
"Community Forestry Project in Nepal." Agricultural Information Development Bulletin 3 (1982): 2-9, 38.

In 1956, all forests were nationalized. Further legislation in 1961 annexed all land adjoining forested areas that had been left fallow for two years. The result of these actions was the opposite of what had been desired. Instead of conserving the forest, nationalization may have hastened the process of forest depletion, especially in the hills and mountains. Under the system of forest management practiced up to 1956, rural people were able to satisfy their basic forestry needs without depleting the forests too much. The nationalization of forests made this activity illegal. In the absence of uniform law enforcement, rural people tended to over-exploit the forests they no longer considered their own. A response to correct this situation has been the establishment of panchayat forests. (Nepal; ICRAF)

2. Aguilar, F.V.

The Kalahan Educational Foundation: A Case Study of Social Forestry in the Upland Philippines. Quezon City: Institute of Philippine Culture, Ateneo de Manila University, 1982.

Legal title to much of the ancestral land of tribal communities in the Philippines vests with the government and, because of its classification as forest land, is administered by the Bureau of Forest Development. Land not "released" by the BFD is subject to severe anti-kaingin restrictions, but in fact shifting cultivation is practiced under customary tenure arrangements on much of this land. Among the Ikalahan of Luzon, customary law grants exclusive use-rights to swidden land in fallow to the original cultivator, but these rights may lapse if the land is left uncultivated for a lengthy period. Private ownership of "released" land is increasingly common along the main rivers and in the municipal areas in Kalahan. Following a long history of local attempts to improve the security of tribal tenure over ancestral lands, in 1974 the BFD granted a 25 year lease on 14,730 hectares within the traditional Ikalahan territory to the Kalahan Educational Foundation, to be managed cooperatively under an agroforestry development plan for the watershed administered by a local board of trustees. The plan called for the adoption of a number of systems of productive and sustainable land use (including carefully managed swidden) within the "reservation" based on a combination of individual and communal tenure arrangements. The present evaluation study, based on a survey conducted in the seventh year of the project, indicates substantial acceptance of those elements of the land use plan which reinforce traditional conservation strategies (involving fire control, contour erosion barriers, etc.) but resistance to "bureaucratic" aspects of administration (permits for clearing new swidden fields, fines for land use violations, etc.). While feelings of tenure insecurity have diminished markedly, some fear still persists and there is dissatisfaction with the centralization of authority in the trustees and what is perceived as a low level of popular participation in decision-making. The study provides a basis for close scrutiny of this innovative "stewardship" model for agroforestry land management in traditional communities where conservation problems and tenure conflicts might otherwise undermine sustainable development of forested watersheds.

3. Ahn, Bong Won  
"Village Forestry in Korea." In Proceedings, VII World Forestry Congress. Jakarta: IFURO, 1978.

During the Yi Dynasty (1392-1910), all forests were put under national custody. In 1910, an ownership system was set up. Considerable areas of

forest have traditionally been maintained for the graves of the ancestors. People regard the forests as ownerless public land. The tradition of collecting firewood and a small amount of timber for farm tools, regardless of any ownership rights, has continued even after the establishment of a forest land ownership system. Voluntary Village Forestry Associations have sprung up in which households and forest owners cooperate to protect the forest. Village people continue to collect fuel from any forest land. (Korea; ICRAF)

4. Appell, G.N.

"Social Groupings Among the Rungus; A Cognatic Society of North Borneo." Journal of the Malay Branch of the Royal Asiatic Society 41 (1968): 193-202.

The spread of wet-rice agriculture among the swiddening Rungus Dusun-speakers is a "precaution against the day when areas available for swidden agriculture are no longer as fertile." Two changes are 1) a shift from village ownership of bounded swidden land to individual ownership of wet-rice fields as the most important type of land holding and 2) a change from uxorial residence to virilocal residence, since males inherit irrigation works from their fathers by the rules that individuals who contribute most to their construction have a secondary claim on them, particularly when acreage is limited, and the government encourages that individual titles be held by men rather than by women. Population-land balance is also becoming severe and leading to trespasses as swiddens are opened up by strangers within a village's rightful territory.

5. Araneta, Teodoro C.

"Zamboanga Forest Managers Corporation Agroforestry Farm Model Project." Canopy 4 (1978): 6-7.

The author reports on a private sector financed and directed effort to reforest 100 hectares per year using agroforestry concepts. This is seen as an effective way to meet the legal requirements of the Forestry Reform Code (P.D. No. 705) of replanting and developing forest plantations on forest land leased from the state. Kaingineros (slash and burn, shifting cultivators) will be invited to join the production and marketing cooperatives to be organized. To participate, a kainginero must have registered with the Bureau of Forest Development before 1975 (as stipulated in P.D. No. 705). The actual tree planting and harvesting is to be done by "seldas" (working units of 7 families). The companies involved will provide all technological and legal assistance to participants.

The kaingineros initially go through a trial period during which their land use permits are renewed annually. When they can demonstrate the ability to manage their agroforestry holdings (rubber, forest, and mixed tree species, along with corn and cassava), they will be issued a lease. The type of lease is not specified. (Philippines)

6. Baden-Powell, B.H.

A Manual of Jurisprudence for Forest Officers. Calcutta: Superintendent of Government Printing, 1882.

This volume provides a historical perspective on the administration of forests and forest reserves, and spells out rights that existed in the last century. (SOAS)

7. Bailey, Conner

The Sociology of Production in Rural Malay Society. Kuala Lumpur: Oxford University Press, 1983.

This study contains a detailed account of Malay small holder rubber production in Peninsular Malaysia. Ownership patterns and systems of sharing are described. The social relations of production among rubber tappers are compared to those which exist among Malay rice farmers and fishermen.

8. Bajracharya, Deepak

"Fuelwood and Food Needs Versus Deforestation: An Energy Study of a Hill Village Panchayat in Eastern Nepal." In Energy for Rural Development Program Report PR-80-2: Part III, Fuelwood and Food Needs Versus Deforestation, An Energy Study of a Hill Village Panchayat in Eastern Nepal. Washington, DC: United States Agency for International Development, 1980.

Most studies of fuelwood consumption err in assuming that all fuelwood comes from forests, in failing to notice that scavenging twigs and lopping off dead branches provides a lot of wood without deforestation, and in failing to notice that levels of consumption vary. The existing land tenure system enables people to get more land for production by cropsharing, mortgaging, purchasing or clearing forest land. On average, 23 percent of the households claim forest land, although government does not recognize these claims. People do not like slash and burn (swidden) agriculture, but given low crop yields and shortage of agricultural land, it may be their only option. It is this shortage of food and the need for more land to produce it that is leading to deforestation, not the need for fuelwood. Two social processes--the Chipko movements and the chopping down of teak forests in Jharkhand--indicate people's desire to control forestland for their own purposes. (Nepal: ICRAF)

9. Bangladesh Institute of Development Studies

Proceedings of National Workshop on Development of Forest Communities Practising Shifting Cultivation, September 28-29, 1980. Dacca: Bangladesh Institute of Development Studies, 1980.

The tenancy system in the Chittagong Hill Tract operates against the interests of the tribal people. The right to the land including the forest is vested in the Government. In the alluvial areas the land tenure system is similar to that in the rest of Bangladesh consisting of leases given by the district authority. In the hill area, any shifting cultivator can cultivate with permission of the headman for a nominal fee. In the fringe land left when lake water recedes, leases are given by the headman of the sub-divisional officer. (ELC)

10. Benge, Michael D.

"The Private Sector's Contribution to Reforestation." Canopy 3 (1977): 4-5.

The author describes a year-and-a-half project by Subuhay Vinyl Corporation to reforest denuded hillsides. The corporation leases land and then pays the farmers to plant ipil-ipil. Once the trees reach maturity, they will be cut and made into charcoal, which the corporation will purchase to use in its manufacturing processes. Title to the project land is insecure, and the author states that the company leased land from local farmers while waiting for a government tree plantation lease. The author does not discuss the implications of this. At the time the article was written (1977), 380 hectares of rented land had been planted. (Philippines)

11. Bennett, Lynn

The Parbatiya women of Bakundali: The Status of Women in Nepal, Volume II, Part 7. Kathmandu: Centre for Economic Development and Administration, 1981.

Fruits are considered appropriate offerings for the gods. Hence there is intense social pressure on villagers to distribute these crops to anyone who asks, especially if the person is going to make a religious offering. By the same token, villagers must tolerate heavy pilfering by young children, which is considered a prank, not theft. There is a special festival in celebration of the young Lord Krishna's fruit stealing when even grown men raid their neighbor's garden at night.

12. Bharara, L.P., and Sen, M.L.A.

"Social Aspects of Farm Forestry in Arid Zones." Annals of Arid Zones 9 (1970): 36-44.

This article describes caste and class groupings of those who plant trees. Three-fourths of those owning land plant trees, as opposed to one-fourth who do not own land. Those who own more than 20 hectares of land have the highest planting rate: 85.7 percent. Irrigation is also significantly associated with the planting of trees. A chart showing the overall number of trees of different species and their survival rates is also presented. (India; GEOGRAPHY)

13. Bompard, Jean; Ducatillon, Catherine; and Hecketsweiler, Philippe

A Traditional Agricultural System: Village-Forest-Gardens in West Java. Montpellier: Academie de Montpellier, Universite des Sciences et Techniques du Languedoc, 1980.

The authors discuss land inheritance subject to conflicting systems; Islamic, under which the sons inherit; Roman, under which all children inherit; and traditional systems, which vary from village to village. Gardens are divided with each succeeding generation such that in the end a villager may own only a few trees rather than a whole garden. Certain magic or sacred trees are preserved. (Indonesia; ICRAF)

14. Boonkird, Sa-Ard

"Taungya System: Its Applications, Ways and Means of Improvements in Thailand." In Proceedings, VII World Forestry Congress. Jakarta: IUFRO, 1978.

A general description of changes that have taken place in government taungya programs. Principle among them was the provision of more secure forms of land tenancy and employment and making these inheritable by descendants of the original taungya participants. The lack of any title is still a major reason for enlisted families deserting a taungya village.

15. Bote, Pio

"A Model for Forestry-Based Rural Development." Canopy 8 (1982): 14-16.

The author presents a brief model of forestry-based rural development patterned after Chinese and Ethiopian self-reliance experiments. His major argument is that the existing Presidential Decree (P.D. No. 705), revised forestry code, restricts forest use and profits to only those who have financial resources and technology. This leaves out the poor, who are most in need of new economic opportunities. Also, he argues, that leaving the decision of whether or not a forest user is in compliance with the regulations upon which tenure is based solely in the hands of officials from the Ministry of National Resources and the Bureau of Forest Development effectively eliminates any possibility of real community voice. (Philippines)

16. Briscoe, John

The Political Economy of Energy Use in Rural Bangladesh. 1979.

Starting with the Permanent Settlement of Bengal, the British promulgated a series of radical land tenure ordinances that resulted in private ownership of lands that had been collectively owned by the village. Both before and after the changes wrought by the British, equilibrium depended on a balance of transfers of peasant surplus to the rulers and the provision of minimal security for the cultivators. Historically, this balance had been effected through communal organizations and through vertical relationships between powerful patrons and peasants. The revolutionary effect of the changes in land tenure was that after these changes, patron-client relationships stemmed directly out of the possession of differential rights in land. The ideal patron provides his clients with work and income and permits them to collect fuel from his land, trees and cattle among other things.

Sixteen percent of the families in the village own 80 percent of the trees. In theory, a land owner controls all resources on the land including fuel. There are differences in fuel used by class and by season. The changing economy is forcing the poor to turn to the cash economy to buy fuel to cook their food. Apolitical energy programs such as biogas and village woodlots designed to help the poor more often help the rich, since only they have the resources to utilize these programs, thus reinforcing the structures responsible for poverty in the first place. (Bangladesh; ICRAP)

17. Caleda, Artemio  
"An Interview." Canopy 6 (1980): 3-4.

Canopy interviewed Artemio Caleda, national director of the communal tree farm program. Participants are allocated approximately 2 hectares each, and after a year's trial period they are given a tenure of management agreement for 25 years. It is the participants' responsibility to care for and harvest their own tree plantations. They have rights to all production. There are no rentals, no fees or forest charges. The project is stated to have 40 percent of its area in trees, 60 percent in annual crops. (Philippines)

18. Campbell, J. Gabriel  
Outstanding Social Issues in the Proposed Madhya Pradesh Social Forestry Project. New Delhi: United States Agency for International Development Mission to India, 1980.

Madhya Pradesh gives a large percentage of usufruct rights on state land free. Revenue lands are freely available for unlimited grazing unless claimed by the government or panchayat for some particular project. Traditional access rights (nistar) give unlimited grazing and minor forest collection rights to rural residents in forest classified as protected. Unlimited grazing and even some collection rights are freely available even in the remaining forests classified as reserved. The government reserves to itself the right of cutting any of the most valuable tree and bamboo species existing on private lands. Management of public lands consists almost exclusively in protecting the division of harvesting rights within the same lands between two different groups--the government and the people. The tree trunks and main branches are owned by the government; almost all other vegetative matter are owned by the public. There is a high degree of ambiguity about the land ownership rights on uncultivated revenue land, illegally occupied revenue land, and illegally operated forest land. The question of allotting land to landless people for planting trees and fodder crops only is raised.

19. Cernea, Michael  
Land Tenure Systems and Social Implications of Forestry Development Programs. World Bank Staff Working Paper, no. 452. Washington, DC: World Bank, 1981.

Under customary rights, people are entitled to remove deadwood, branches, and non-commercial species primarily for personal consumption without payment. A World Bank project was intended to reforest the area in part by planting trees on community land. Sociological scrutiny, in the wake of unexpected overwhelming project success, found that community land had over time been privatized by the wealthier families in the village. These large landholders hoped to get their community lands planted at full government expense without making any repayment commitment. Establishing a tree plantation would also allow them to restrict the access and customary rights of smaller farmers to collect grass, tree branches and so on. Smaller farmers were concerned that they might lose control of their land and access to fodder by participating in the project, but were more willing to contribute toward the costs of the project when they did participate than were the wealthier farmers. The need to write a flexible, clear contract and to reduce the requirement for 50 contiguous acres to allow farmers with fragmented land to participate are suggested. The difference between de jure and de facto land tenure is stressed. The possible negative results of project design without looking at social and cultural factors are illustrated. (Pakistan)

20. Chakravarti, R.

Forestry for the Masses. Bhopal, Madhya Pradesh; Forest Resources Survey, 1976.

Nistar is forest produce such as fuelwood, timber, bamboo. In the latter half of the 19th century, it was the general practice to allot to each village an area of forest and wasteland limited to twice the area of the cultivated land in the village. All forests in excess of this were designated as Reserve Forests and brought under the Indian Forest Act. Except in some tribal areas, there were no use rights in the Reserve Forest and the collection of dry firewood and grazing were regulated. Under population pressure, people turned to Reserve Forests to meet their nistar requirements. (India; ICRAF)

21. Chiang Mai University, Faculty of Agriculture, Food and Agriculture Organization

"A Case Study of Forest Village System in Northern Thailand." In Report of the FAO/ILO/SIDA Consultation on Employment in Forestry, a text, pp. 211-236. Rome; FAO, 1974.

Forest villages were set up in areas of traditional swidden cultivation. The forest village, which has the status of a plantation workcamp, is governed by the plantation head regarding maintenance of law and order and provision of services promised to village members. According to law, each forest village is under the authority of district police and the officer of the district where the village is located. When questioned about who is responsible for developing the village, informants answered either that the plantation staff or government officials were.

Villagers do not get an adequate income. Those who do not have any direct debts still must go into debt to purchase goods on credit at high interest rates. One of the major problems in the village is land ownership. It is recommended that it be made clear to future settlers that they will not own the land. (Thailand; ICRAF)

22. Colfer, Carol J. Pierce

"On Kenyah Dayak Tree Cutting in Context." In Final Report: Interaction Between People and Forests in East Kalimantan, Indonesian-U.S. Man and Biosphere Project, 1982.

There may be an increasing size in rice fields due in part to traditional land tenure rules. The household which first clears a portion of virgin forest retains the right to use that area. Clearing large sections of forest would also function to "reserve" large landholdings. The international timber price is an important factor in villagers' decision whether to log at a given time.

A sense of land scarcity does not, however, seem to be very important in traditional Kenyah daily life. The author indicates that traditionally trees and their products were free goods and did not constitute a claim to land. "Traditionally, the people have planted fruit tree here and there, along paths, in rice fields and other accessible places. These trees have grown up with the surrounding forest, providing refreshment and nutrients over the years to the people, and constituting a kind of partial reforestation," she writes. This would be consistent with the description of the Kenyah as people who share rather than hoard or sell their surplus. The report describes new experiments with growing cash tree crops.

The resettlement project plan prescribed fixed and small bits of land for each family to use. The rights of the timber company to the forest in the area are clearly understood by local residents. People from all over East Kalimantan are hearing about the alien "modern" concept of land ownership, which allows for sale and ultimate land alienation. There is awareness in the village that the current system of land tenure is on the way out; people are beginning to consider ways to secure legal rights to their land. Tree crops

are a relatively long-term investment providing a more lasting demonstration of ownership/use than do shifting rice fields that revert to forest. Long-term Dayak rights to their land are uncertain. Another study showed that in no case had a Dayak received a title to land. Government officials maintained that this was because of the Dayak practice of shifting cultivation. However, Javanese transmigrants in the area who have turned to shifting cultivation have received land titles.

Varying views on the legality of cutting ironwood are expressed. The ecological problems for the forest appear to derive primarily from the profitability of timber and food production, not from shifting cultivation.

This research project is important because it demonstrates the effect of change in land use (from low density swidden agriculture to capital-intensive lumbering) on both the land tenure system and the agro-forestry system. In areas most affected by concessions, certain forest products have been abandoned for plastic equivalents. Cropping practices are beginning to shift in anticipation of changing land tenure and in response to new technology and new economic opportunities. Although the data are never brought together in a coherent whole and there are holes in the conceptual framework, this research does provide useful glimpses at bits and pieces of a traditional swidden system under changing circumstances. (Indonesia; ICRAF)

23. Colfer, Carol J. Pierce

"Change and Indigenous Agro-Forestry in East Kalimantan." In Interaction Between People and Forests in East Kalimantan, Indonesian-U.S. Washington, DC: Man and Biosphere Project, 1980.

In describing gathering minor forest products, the author indicates that these are considered free goods available to be taken by anyone. However, these rights are not dealt with specifically. Contracts between the government and timber companies specify that people are free to utilize the forests in their "customary manner," including using trees for house building. This right is sometimes used to justify timber harvesting for sale, on the theory that nails and other goods must be bought to finish a house. Ironwood is the species about which the most conflict and confusion exists, as it is not owned by the timber concession holder. It is considered an endangered protected species, yet it holds a prominent place in the traditional human timber use patterns in the area. (Indonesia; ICRAF)

24. Colfer, Carol J. Pierce

"Women, Men and Time in the Forests of East Kalimantan." Borneo Research Bulletin (September 1981): 75-85.

Women are actively involved in agroforestry decision making. (Indonesia; ICRAF)

25. D'Abreo, Desmond

People and Forests: The Forest Bill and New Forest Policy. New Delhi, Indian Social Institute, 1982.

Prior to colonial rule custom prohibited the cutting of certain trees including those in sacred groves. Otherwise all forest products were freely available. The Forest Act of 1865 restricted the use of the forest. In subsequent policies, the rights of forest dwellers have been steadily eroded. The proposed Indian Forest Bill of 1980 reduces the rights of forest dwellers over forest produce to a minimum and they may be convicted as criminals for trying to eke out their livelihood as they have done for centuries in the forests. (ELC)

26. Dai Yingxin (Jianxi)  
Agricultural Archeology. (1981/2), 36-41.

"There should be an appropriate policy to encourage the masses to plant trees and protect the forests. In particular in arid areas where the inhabitants live in scattered villages with a lot of bare land around their house, people should be rewarded for actively planting trees. It should be made clear that when trees have been planted by the collective, they are collective property and where they have been planted by individuals, they are individual property." Original Chinese translated by N. Menzies, Department of Forestry and Resource Management, University of California-Berkeley. (China)

27. Daryadi, Lukito

"The Management and Conservation of Dipterocarps in Indonesia." Malaysian Forester 44 (1981): 190-192.

A plea for specific ideas on land management for forest use and conservation.

28. Diaz, Celso P.

"Socio-Economic Thrusts in an Integrated Forest Management System: the Philippine Case." In Socio-Economic Effects and Constraints in Tropical Forest Management, ed., E.G. Hallsworth, pp. 107-122. Chichester: Wiley, 1982.

The objective of the present system of land classification is to retain 42 percent of the total land area as forests. All lands 18 percent (10 degrees) more in slope are to be retained for forest. Only areas less than 18 percent slope can be classified as alienable and disposable. Where public interest requires, areas previously classified as alienable or disposable may be returned to the category of forest land. Communities can get 25-year leases on idle forest land for wood lots. (Philippines: ICRAF)

29. Dove, Michael

"Tree Rights, Tree-Holding Units and Tree-Using Units Among the Melaban Kantuq: The Factors of Scarce Land, Scarce Labor, and Scarce Knowledge in Their Evolution." In American Anthropological Association, Annual Meeting, 1976.

Primary forest rights (the right to make a swidden or a rubber grove in a given section of forest) are mostly vested in the longhouse apartment. Any longhouse apartment has the right to primary forest within the territory of the longhouse. In a section of primary forest not adjoined by any secondary forest, these rights are established by clearing. The apartment holding rights to secondary forest also has unqualified first rights to the immediately adjoining primary forest. Primary forest rights cannot be sold, and do not preclude other apartments in any longhouse from clearing land, felling trees, hunting or gathering in that section of forest.

Secondary forest rights (planting and disposal rights) are mostly vested in apartments. These rights are established through the apartment's having felled and then planted in the primary forest at that same location or through sale, exchange or outright gift. Other apartments cannot be precluded from felling, hunting, or gathering therein. And as soon as an apartment's intent to move to another region becomes known to the rest of the longhouse, that apartment is prohibited by the longhouse from making any further disposal of its rights to secondary forest. After the apartment moves, all of its rights to secondary forest become vested in the longhouse to be exercised on an alternating basis among all longhouse apartments.

Rubber groves (tapping rights and rights of disposal) are always vested in the apartment and are established by planting, purchase or outright gift. Other apartments are not precluded from hunting or gathering therein. Rules

for division are detailed. Tree rights emerged after the cessation of large-scale warfare in 1920-30 which led to sedentarism, intensive cropping systems and, consequently, tree pressure. An elaboration of tree rights can be expected to follow the intensification of sedentarism and cropping.

The longhouse apartment is the most logical unit on which to base any agroforestry project. An elaboration of tree rights to new tree species and uses will be necessary. (Indonesia)

30. Dove, Michael R.

"Theories of Swidden Agriculture and the Political Economy of Ignorance." Agroforestry Systems 1 (1983): 85-99.

The author illustrates the unnecessary difficulties introduced into the development process (and projects) by three of the most prevalent myths concerning swidden (slash and burn) agriculture: (1) primitive communism, (2) misuse of the environment, and (3) rural agriculturalists' isolation from regional, national, and international economies. The author concludes that the persistence of these misconceptions is explicable in terms of the political and economic self-interest of the broader society and the expropriation and exploitation of slash and burn agriculturalists' land for plantations.

The idea of communal land glosses over the fact that individuals and households have long-term interests in specific units of land. These are protected during fallow cycles in South Kalimantan by planting fruit trees. The forest fallow then "belongs" to the individual who planted the fruit trees, and the government is expected to recognize it as such. Also, this strategy establishes long-term interests in the land. All members of the Kalimantan village have rights in land inherent to their village membership, but their actual use rights to land are the result of age, household composition, and histories of different households. These factors determine the amount of primary forest cleared, the secondary forest claimed, etc. (Indonesia)

31. Dove, Michael, R.

"Development of Tribal Land-Rights in Borneo: The Role of Ecological Factors." Borneo Research Bulletin 12 (1980): 3-19.

The author questions the extent to which ecological factors might influence the form of a social institution such as land tenure in a swiddening society. Among the Kantu of Kalimantan, the author finds that environmental influence varies with the influence of other social, political, and economic factors. Prior to the cessation of warfare between the Kantu and the Iban, the Kantu preferred to farm in primary forest in spite of the fact that this type of forest gives poorer rice yields, since a greater volume of slashed wood burns much more poorly in this high rainfall area, and thus contributes less to fertility. This preference was due to the fact that swiddens in secondary forest, though burning better, require weeding. Weeders, who would have to be protected, meant a defensive burden.

When warfare ceased, secondary forest became more valuable for its higher yields, weeding could be practiced, and individual households within a longhouse territory began to claim rights to fallowing swiddens in perpetuity for themselves and, later in time, for next-generation divisions of the household. This move was also a conscious response to growing population pressure on the land. A diachronic view shows that although ecological factors were constant through time, they were expressed differently in land tenure arrangements at different periods, and their influences varied with changes in demographic and cultural factors.

32. Duldulao, A.

"Sociological Aspects of Agro-Forestry." In Proceedings of the Agro-Forestry Symposium/Workshop. Los Baños, Laguna; PCARR, 1979.

It would be appropriate to give swidden and the landless agriculturalists top priority in leasing public land. They can develop it with their own labor. They have already occupied this land and will fight eviction attempts. The minimum lease has been dropped from 100 to 10 hectares, but this needs to be publicized. (Philippines; ICRAF)

33. Estioka-Griffin, Agnes, and Griffin, P. Bion

"The Beginning of Cultivation Among Agta Hunter-Gatherers in Northeast Luzon." In Adaptive Strategies and Change in Philippine Swidden-Based Societies, ed., Harold Olofson, pp. 55-72. Quezon: Forest Research Institute, 1981.

A government agency is reported to have marked off an entire valley for the use of a single ethnic group. Uncertainty about this has discouraged other ethnic groups from moving in. The ethnic group considers the valley theirs and considers those who were born there or who have married in to have land use rights. Land use patterns are changing in that people are now reluctant to abandon their new fields that have been cut since the early 1970s, lest landgrabbing lowlanders take them over. (Philippines; ICRAF)

34. Fernandes, Walter

"Towards a New Forest Policy: An Introduction." In Towards a New Forest Policy: Peoples' Rights and Environmental Needs, eds., Walter Fernandes and Kulkarni Sharad, pp. 1-29. New Delhi: Indian Social Institute, 1983.

This comment on the draft Indian Forest Bill, 1980, has as its premise that "both the context of the bill and the language in which the proposed legislation was couched, gave greater importance to protecting forests from the tribals and other forest dwellers than from the commercial industrial interests that have been the root of the malaise" (page 1). Fernandes also states that both the current and proposed systems do not give adequate incentives to all who destroy forests to replace them. The ownership of the forests has been taken away from the forest dwellers, diminishing further their incentive to reforest. However, "landowners have been able to increase their profits since growing soft woods like eucalyptus insures them regular income with somewhat low investment and little labor" (page 7). Where land tenure is secure, then, agroforestry is occurring. (India; LTC)

35. Fleming, William A.

"Phewa Tal Catchment Management Program: Benefits and Costs of Forestry and Soil Conservation in Nepal." In Forest and Watershed Development and Conservation in Asia and the Pacific, ed., Larence S. Hamilton, pp. 217-288. Boulder, Colorado: Westview Press, 1981.

Prior to 1957, the forests of Nepal were owned communally; at that time, however, the government nationalized all forests, leaving the villages to manage the land. Since then, deforestation has accelerated, as incentive for sound management has declined. Some communal or "Panchayat" owned lands are specifically required to be reforested by the community. The land tenure issue discussed in this paper is the role of Panchayat lands in reforestation.

36. Food and Agriculture Organization

China: Forestry Support for Agriculture, FAO Forestry Paper, no. 12, 1977.

In 1949, less than five percent of China was forested. In the post-revolution era, however, a massive reforestation effort was begun, an effort which had at its basis "participation of the masses in the planning procedure" (page 5). Forest cover is now at ten percent. Land tenure is vested in the community or "unit" that manages and maintains the forests, and trees planted around a house vested with the responsibility. (China; STEENBOCK)

37. Food and Agriculture Organization  
The State of Food and Agriculture, 1979.

The rural poor have gained little by the rapid increase in demand for wood for industry. Not being the titular owners of the commercial land even where they have been sole occupiers for generations, their only benefit from sales has been the opportunity for some employment. Being unable to compete with the prices paid by industrial buyers, they have lost their freedom to use the wood for their own needs. For example, in those countries of Southeast Asia, where teak was the traditional building material, villagers now have to make do with inferior woods. Where landless peasants have occupied forest land illegally for a number of years, strict law enforcement cannot be contemplated unless associated with a generous resettlement program. When a government wants to convert publicly owned forest land to a system of agriculture with forest fallow, it is desirable that the cultivators be given some security of tenure. (Afghanistan)

38. Fox, James  
Harvest of the Palm. Cambridge: Harvard University Press, 1977.

The ownership of trees on the island of Rontl is one of the most difficult on which to obtain information. Unlike coconuts, lontar palms are not marked by their owners and trees abound everywhere. Where they occur individually, they are counted by the trunk, where they occur in large numbers, they are reckoned in clumps or clusters. At best, a stone or two may mark the boundaries between clusters. The ownership of trees provides a potential source of litigation, and trees are indeed the cause of numerous court cases. Most trees belong to the nobles and the rich, who themselves have only a general idea of the number of trees they possess. By contrast, there are many commoners who own no trees at all and many more who own only a few. (ICRAF)

39. Generilao, Maximo L.  
"Land Use Pattern and its Relation to Agroforestry." Canopy 4 (1978): 7.

The author argues that agroforestry presents both an opportunity and a means of formalizing customary land tenure law and practices, because forest property introduces a new type of investment in land and thereby alters the short-run interests of subsistence farmers. The author further argues that it is the heterogeneous and ambiguous nature of legal statuses of land tenure in tropical forests that has led to encroachment, hillside farming, erosion, and other problems. (Philippines)

40. Goethals, Peter R.  
Rapak: The Annual Swidden Cycle

There are three categories of land property: 1) omal is previously cultivated terrain that has undergone the swidden cycle at least once, and is recognized as the "property" of individual villagers who have disposal rights including clearing, cultivation, fallowing or allowing others to work these plots in the same way (two-thirds to three-fourths of the land); 2) tua is timber reserves or woodlands scattered throughout the village tract in small isolated parcels recognized as village property; consequently timber from any of them may be used by any villager in need of lumber for his own use, with permission from the headman; and 3) kelasir is mapped and formally titled land. Permission must be obtained from the omal owner for wood cutting. Most of the village tree crops are grown not on swidden but in the permanent community homesteads. The coconut is the chief exception in that coconut palms grow throughout the community and are owned individually apart from the land they occupy. The author conducted fieldwork 1954-1956. (Indonesia; ICRAF)

41. Goswami, P.C.  
"Agro-Forestry Practices and Prospects as a Combined Land Use System."  
Indian Forester 108 (1982): 385-396.

In Thailand, modification of the taungya system to grant legal status to the land for use but not for sale has been involved in the use of agroforestry for settling swidden cultivators. (Thailand: ICRAF)

42. Government of Peninsular Malaysia  
"Forest Resource Base, Policy and Legislation of Peninsular Malaysia."  
Malaysian Forester 42 (1979): 328-347.

This is an interim report on emerging policy. The article deals with the implicit need for clear tenure on forest land that is under the control of government so that policy can be enforced. Although policy framers realize that demands for the soil under forest cover is a major competing use, no consideration of the link between crop production, reforestation, tree plantation management, etc. is given.

43. Government of Sabah  
Malaysian Forester 42 (1979): 286-310.

A white paper presentation of Sabah forest policy. There is almost no mention of the relationship between agriculture and forestry except that as lands are de-reserved for agricultural use they should be supplemented by new reserves. Vigorous defense of state tenure rights over forest reserves is called for.

44. Government of Sarawak  
Malaysian Forester 42 (1979): 311-327.

This is a government white paper on forest policy in Sarawak. The greatest threat to forest reserves is from shifting cultivators who are estimated to destroy about 60,000 hectares annually. No further mention is made of the problem in the policy. Land tenure of forest resources is divided between forest reserves, protected forests and community forests. The first two are areas for timber production, while the latter is for the supply of domestic timber for the community for which it is constituted. The kinds of rights possessed by these communities to such forest land is not discussed.

45. Grandstaff, Terry N.  
Shifting Cultivation in Northern Thailand. Resource Systems Theory and Methodology Series, no. 3. Tokyo: United Nations University, 1980.

The author describes history and operation of a taungya system. Private, long-term ownership of specific swiddens is rather antithetical to the values of the society and to the integrated socio-economic methods by which swiddeners make a living (and further exacerbated by governmental prohibitions against land rights for swiddeners). In areas where established swiddeners already manage discrete village territories, the first priority should be to grant legal land tenure. Usually such rights are already well recognized by integral swiddeners but not by permanent-field farmers or other outsiders who may wish to appropriate swidden lands for their own purpose. The nature of these land rights need not amount to outright ownership, in the sense that swiddeners can then do anything they like with it. Rather, it would be similar to zoning regulations.

Individual land rights within the village territory are a complicated matter. Opium swiddens are never corporately owned as long as they are producing. Such plots have been frequently bought and sold. Whereas rice plots belong to the entire household, opium plots belong to the individual. Fruit trees are planted in the worked-out opium swiddens and the orchards

produced belong to the individual owners. The natural trend of cash cropping practices then may be in the direction of private ownership. Possibilities for the future and the political position of swiddeners are not discussed. (ICRAF)

46. Gregersen, H.M.

Village Forestry Development in the Republic of Korea: A Case Study.  
Rome: David Lubin Memorial Library, FAO/SIDA Forestry for Local Community Development Programme, 1982.

Deforestation in Korea is due to the fuel needs of rural citizens. The Saemaul Udong project was begun in 1970 to address the problem of deforestation. The 1972 forestry development law gives the forestry department the power to "require" a private landowner to reforest his land for a community fuel lot. Shifting cultivation is also discussed.

47. Gregerson, H.M.

Village Forestry Development in the Republic of Korea. (Document (FAO), GCP/INT/347/SWE.) Rome: Food and Agriculture Organization, 1982.

Seventy-three percent of Korea's forestland is privately owned, twenty percent in National Forest, and seven percent is community owned. During the fourteenth and fifteenth centuries, the Yi Dynasty introduced felling restrictions and prohibited private forests. After this prohibition, there developed a strong tradition of communal access to the forest for wood and litter to meet fuel requirements. After the Japanese invasion, the king granted forest land to loyal subjects. This reestablished private forest ownership. However, after the system of private ownership was firmly established again, the tradition of communal use of forests--both private and public--continued with almost total disregard for ownership. (ICRAF)

48. Gupta, P.N.

"The Effects of Government Policy in Forest Management in the Himalayan and Siwalik Region of Uttar Pradesh, India." In Socio-Economic Effects and Constraints in Tropical Forest Management: The Results of an Enquiry, ed., E.G. Hailsworth, pp. 65-72. Chichester: Wiley, 1982.

Almost all villagers had certain prescribed rights recorded when Traill demarcated the boundaries of land and villages for revenue administration from 1817-23. These rights vary according to forest classification. In the 1,000 square kilometers of Old Reserve (1877) there are fewer rights to grazing, grass cutting and leaf-plucking. In Class I New Reserves (1911-1917, subject to the recommendations of the Kumaon Grievance Committee of 1921), right holders could cut any tree of any species and lop off branches except for protected species for which the permission of the District Magistrate was required. In Class II New Reserves, right holders could cut trees other than the protected species under certain restrictions. Continuous agitation has led to the expansion of use rights. The problem of administering protected areas lies in the belief that forests are gifts of nature for the unrestricted use of the people. (India: ICRAF)

49. Handa, Ryoichi

"Structure of the Forest Ownership." In Proceedings, International Union of Forest Research Organizations, XVII World Congress, pp. 96-104. Kyoto: IUFRO, 1981.

This report contains many statistics on Japanese forestry ownership. A section covers common forests, small individual forests that are usually farms with a large percentage of the cover. (Japan: FOREST PRODUCTS LAB)

50. Hartmann, B., and Boyce, J.K.

A Quiet Violence: View From a Bangladesh Village. London: Zed Press, 1982.

Chapter 12 presents a narrative case study of a poor family which is forced to sell land to pay for medical expenses and later to cut down and sell its young fruit trees for firewood to buy enough food for a few days subsistence. This tragic story provides a graphic illustration of the role of trees as buffers against emergency contingencies but offers little hope for tree planting as an effective strategy against the worse forms of rural poverty in population pressured situations where land alienation and usury prevail.

51. Hyman, Eric

The Monitoring and Evaluation of Social Forestry Projects: A Handbook. Rome: FAO, Forthcoming.

Since land usually is rented for one year at a time, renters and sharecroppers lack the tenure security necessary for tree farming. Because tenants are not assured of receiving benefits of long maturing crops such as trees, they will not be interested in farm forestry unless they can reach an equitable agreement with their landlords on sharing tree benefits. Conversely, large land owners will avoid farm forestry in favor of short-term benefits if they are afraid of land appropriations. Farm forestry is hindered in rural areas of many less developed countries where land registration records or title are absent or conflicting, leading to disputes over ownership and use of land. Traditional landless rights to cut trees for fuelwood, polewood or construction wood on private lands that do not belong to them may reduce the incentives for tree planting. It is more difficult to recruit farm forestry participants in places where the government has nationalized forest lands. This happened in Nepal and in West Bengal in India during the 1950s. To this day, although these laws have been repealed, potential participants are afraid they would lose their land permanently to the "Love Forest" if they establish a stand of trees. (ODI)

52. Hyman, Eric L.

"Loan Financing of Smallholder Treefarming in the Provinces of Ilocos Norte and Ilocos Sur, the Philippines." Agroforestry Systems 1 (1983): 225-243.

Author's Abstract: Following the model of a credit program for pulpwood production and agroforestry by smallholders in another region of the Philippines, the World Bank financed a similar scheme to produce fuelwood for the small-scale tobacco curing industry in the Ilocos region. This project proved to be unsuccessful due to local cultural attitudes toward borrowing money, inadequate forestry extension services, and the dispersed characteristics of the fuelwood market.

53. Hyman, Eric L.

"Pulpwood Treefarming in the Philippines from the Viewpoint of the Smallholder: An Ex Post Evaluation of the PICOP Project." Agricultural Administration 14 (1983): 23-49.

Points out that although one objective of the project was to provide wage employment for slash and burn cultivators, the landless poor were not eligible for treefarm development loans.

54. Hyman, Eric L.

"Analysis of the Woodfuels Market: A Survey of Fuelwood Sellers and Charcoal Makers in the Province of Ilocos Norte, Philippines." Biomass 3 (1983): 167-197.

Fuelwood sellers could be classified by land tenure with 86 percent of the land owners owning less than three hectares and 95 percent owning less than 10 hectares. Farmland was owned by 52 percent of the sample of sellers and 41 percent rented land in exchange for a share of the crops.

55. Hyman, Eric L.

"How to Conduct a Rural Energy Survey in a Developing Country." Renewable Sources of Energy 1 (1981): 137-149.

It is necessary to clarify who owns lands claimed as "theirs" by survey respondents. Land tenure affects the acquisition of fuelwood because first landlords prohibited the cutting of whole live trees for fuelwood and that practice is illegal on public lands. (Philippines)

56. Jacobs, M.

"Dipterocarpaceae: The Taxonomic and Distributional Framework." Malaysian Forester 44 (1981): 168-189.

A descriptive article on the Dipterocarpaceae based largely on the work of P.S. Ashton and T. Smitinand. The article concludes with the plea that virgin forest reserves be established to prevent shifting cultivation and logging from eliminating the entire genetic diversity of Dipterocarpaceae and other species. Only by the resolve of government to restrict all land use in these reserves can this resource be preserved for the future.

57. Johnson, Karsten L.

Potential Contributions of Farm Boundary Planting to Fuelwood and Income Needs of Marginal Farmers. Unpublished paper. 1983.

Discusses the viability of planting fuelwood trees on the bunds between arable fields. Bund plantations sometimes have the effect of strengthening the farmer's claim to fallow period use of the field, restricting the rights of others to graze their animals. (ICRAF)

58. Joshi, Gopa

"Forest Policy and Tribal Development: Problems of Implementation, Ecology and Exploitation." In Towards a New Forest Policy: Peoples' Rights and Environmental Needs, eds., Walter Fernandes and Kulkarni Sharad, pp. 25-47. New Delhi: Indian Social Institute, 1983.

In 1865 the British instituted the "regulation of rights and restriction of privileges of users in the forest areas which... have previously been enjoyed by the inhabitants" (page 26). These rights have been progressively curtailed throughout the years in the interest of expanded revenues from forests. The question if tribals should by virtue of being native people have the right to use forests in their traditional manner remains (page 29). (India: LTC)

59. Kaul, S.K.

"Human Aspect of Forest Development." In Man and Forest: A New Dimension in the Himalaya, eds., Krishna Murti Gupta and Desh Bandhu, pp. 152-170. New Delhi: Today and Tomorrow Printers and Publishers, 1979.

This history of tribal land tenure in Indian forests focuses on the transition from traditional unfettered rights to total regulation. Specific histories of shifting cultivation and concessions to tribes are outlined for Meghalaya, Nagaland, Manipur, Tripura, and Arunachal Pradesh. (India: MEMORIAL)

60. Khattak, Ghaus M.

"The Watershed Management Program in Mansehra, Pakistan." In Forest and Watershed Development and Conservation in Asia and the Pacific, ed., Larence S. Hamilton, pp. 359-411. Boulder, Colorado: Westview Press, 1983.

The project attempts to motivate the mountain farmer to grow agricultural crops and fruit trees (mainly apple) on level land, using gentle slopes for

pasture and planting steeper slopes in forest trees. The project did not try to move farmers, as past experience had shown that (1) no unoccupied lands exist to which they might be moved, and (2) they do not want to be moved.

61. Khera, P.D.

"Nomadic Tribes and the Forests: The Social Dimension of Forest Improvement." In Improvements in Forest Biomass, ed. P.K. Khosla, pp. 315-322. Solan, India: Indian Society of Tree Scientists, 1982.

Discusses the use of forest areas by tribals in India pointing conflicts with the state over control of the land and the need to undertake development with the rights of the tribals in mind.

62. Kikuchi, Yasushi

"Preliminary Notes on the Social Structure of the Pala'wan, Palawan Island, Philippines." Asian Studies 9 (1971): 315-327.

Traditional hamlets had a headman who parcelled out pieces of communally-owned land to individual families, and who directed labor-reciprocity and swidden (uma) activities. Contact with lowlanders has led to the desire for consumer items. Cash is gained by selling forest products and labor. This has led to a reemphasis on the household as the economic unit, with a loss of importance of the community and a decline in the headman's authority.

63. King, F.H.

Farmers of Forty Centuries. Madison: University of Wisconsin Press, 1910.

A classic work on the soil building and long-term benefits of integrated agro-forestry. Land tenure aspects are dealt with only in passing. For Japan the point is made that most of the farmers are cultivating on rented land. (MEMORIAL)

64. Kulkarni, Sharad

"The Forest Policy and Forest Bill: A Critique and Suggestions for Change." In Towards a New Forest Policy: Peoples' Rights and Environmental Needs, eds., Walter Fernandes and Kulkarni Sharad, pp. 84-101. New Delhi: Indian Social Institute, 1983.

This history of forest legislation in India covers the period from 1800 to 1980. Traditional rights (Nissar rights) to fuel, fodder and food are discussed. (India: LTC)

65. Mastadter, Peter

"Implications of Socio-Economic, Demographic and Cultural Changes for Regional Development in Northern Thailand." In Conservation and Development in Northern Thailand, eds., Jack D. Ives, Sanga Sabhasri, and Pisit Vorauri. Tokyo: United Nations University, 1980.

Land in the middle latitudes is being alienated from its long-established customary use in regular rotation swidden systems. Traditionally, agricultural land was considered to be owned by the village community and allocated temporarily by village religious leaders for use by the individual household. In the last two or three decades, land laws appropriate for lowland irrigated rice farming were proclaimed in disregard of traditional land claims. This has left most villages, even the ones established for many hundreds of years, without legal title to their land, which for the most part now officially belongs to the Royal Forest Department. The market economy and expanding populations have made land into a saleable commodity in spite of the absence of legal title, and individual highland villagers have taken advantage of this changed attitude to buy and sell portions of what was once considered communal property.

Large areas are being reforested on contract by concessionaires, irrespective of their swidden use. This has already led to armed confrontations between the lowland concessionaires seeking to complete their contracts and highland villagers who receive no benefit from the land, which will henceforth be protected forest. Stabilization of land holdings at the village level is essential for any attempt at maintaining or strengthening highlander village structures. This structure is weakened each time land is taken by outsiders from the lowlands, regardless of the purpose, unless the taking is accompanied by a direct increase in the productivity of land remaining for highland village use, and unless there are assurances that the rest of the land will remain in their hands. (Thailand; ICRAF)

66. Kunstadter, P.

"Usage et tenure des terres chez les Lua (Thailand)." In Etudes rurales 53-54-55-56 (1979): 449-466.

The Lua of North Western Thailand (Chiang Mai province) live in a hilly area (1300 M.A.S.L.) and practice a bush fallowing form of shifting cultivation for rice production. In this system, the fallow period lasts for 9 years and cultivation is for only 1 year. Lua land use is based on the village which itself is organized along patrilineal lines. The Lua also maintain fruit trees, which are planted in the villages and owned by those who plant them independently of where they are planted. The fruit is sometimes given to other villagers, sometimes sold to other tribes. The bush fallow areas are communally owned whereas some irrigated fields on terraces are individually owned and can be sold or rented. The communal system includes forests for hunting and pasture. Such traditional land use systems are changing. Due to lack of social and cultural flexibility, the Lua are losing ground to the more flexible Karen people who have similar agricultural practices but without limiting socio-cultural constraints.

67. Kuo, Pao-Chang

"Agro-Forestry: Its Concepts and Implications of a Sound Land-Use Goal." Canopy 3 (1977): 6-7, 10.

The author describes agroforestry as an effective way of managing hillside farming, raising rural incomes and providing stability to agricultural practices. The land tenure issue raised in the article is the role of agroforestry in minimizing or solving the problem of illegal land occupancy and cultivation. The author argues that land reform cannot by itself solve the problems of a land hungry people without an effective technological solution to the problems created by existing land use practices. Agroforestry is seen as overcoming the conflict between the demands of agriculture and the demands of forestry. (Philippines)

68. Kuo, Pao-Chang

"More Land for Forest Conversion." Canopy 3 (1977): 4, 12.

In the Philippines, forest land dropped from 57 percent to 30 percent of the total land area between 1934 and 1975. This was due mainly to reclassifying forest reserves as alienable land by the government. Once land is released to private farmers, the government has little control over its use.

69. Labri, A.K.

"Role of Foresters in Rural Development." Silvan 5 (1981): 51-60.

Villagers fear that if they grow tree crops, the produce may be taken by the Forest Department. Small farmers with fragmented holdings fear that their land is not sufficient to afford space for trees. Villagers often want waste land used for grazing, not forestry. Villagers adjoining Forest Reserves use those for firewood rather than growing their own. (India; ICRAF)

70. Lau, Buong Ting

"The Effects of Shifting Cultivation on Sustained Yield Management for Sarawak National Forests." Malaysian Forester 42 (1979): 418-422.

In Sarawak, shifting cultivation practices have made sustained forest production impossible. Every small percentage of the land is under settled cultivation. The cultivators in Reserved Forest areas have increased with the availability of chainsaws and logging roads. Estimates give 30,000 families of shifting cultivators (average family size given as six). Each family is conservatively estimated to clear seven acres annually with a total of 250,000 acres converted. Sixty percent of this is in high forest. Yet, the author states, the economic and nutritional status of these people is among the lowest in the world.

The solution called for is to police the Permanent Forest with resulting prosecution and eviction carried out. The author feels that the permanent solution will be the economic betterment of the cultivators. Agroforestry is mentioned only in passing as a means of helping soil fertility.

71. Lee, H.S.

"The Development of Silvicultural Systems in the Hillforests of Malaysia." Malaysian Forester 45 (1982): 1-9.

The article discusses the historical background to the present silvicultural techniques used in Malaysia. Land tenure issues are only touched upon obliquely. The emphasis is on forests that are too steep for agriculture with the expectation that lowland forests will pass largely into agricultural production. Shifting cultivation is especially problematical as even one period of cultivation destroys the seedlings and sapplings necessary for a new timber crop and degrades the capacity for regeneration. Agro-silviculture is suggested as one approach for sustained wood production.

72. Llapitan, Eduardo A.

"Agro-Forestation: The BFD Experience." In Proceedings of the Agro-Forestry Symposium/Workshop. Los Baños, Laguna: PCARR, 1979.

Most forest occupants have already developed a strong sense of attachment to the land to the point they would resist any attempt on the part of the government to move them to another place. Under the Bureau of Forestry Development Forest Occupancy Management Program, forest occupants are given a designated area to cultivate or develop into a permanent farm. Such an area may either be the land the person is actually occupying or cultivating, or another area deemed more suitable for agricultural cultivation. A forest occupancy permit that formally authorizes the forest occupant to occupy and cultivate the land is also granted. Farmers are assisted in the development of their farms. (Philippines: ICRAF)

73. Manandhar, Pralad Krishna

"Farm Forestry in Mountain Ecosystems." In International Cooperation in Agro-Forestry: Proceedings of an International Conference, eds., Trevor Chandler and David Spurgeon. Nairobi: DSE/ICRAF, 1979.

All forests were nationalized in 1956. It is believed that the Nationalization Act has hastened the process of forest depletion, especially in the hills and mountains. Under new rules villages can receive forest land. (Nepal: ICRAF)

74. Mi, Lin, and Cai, Shao-song

"A Brief Account of Forestry Development in the People's Communes in Shao-Qing Prefecture, Guadong Province, China." In Report of the FAO/SIDA Seminar on Forestry in Rural Community Development, pp. 121-126. Rome: FAO, 1980.

Ownership of the land designated as a forest farm still belongs to the original brigades or teams. The forest farmer manages the forests but does

not own the land. Trees planted by the forest farmers are owned by the group and the profit and income are shared proportionally among the members according to the amount of land, labor and capital invested. (China; ICRAR)

75. M'chon, G.; Lombion, P.; Mary, F.; and Bompard, J.M.

"Shall Peasant Agroforests Survive?" Paper presented at the EAPI-SUAN Symposium on Research on Impact of Development on Human Activity Systems in Southeast Asia, Banlung Institute of Ecology, 8-11 August 1983.

Land is owned communally. Control over trees is specific to each tree depending on who planted it, the nature of the produce and the age of the tree. Decisions about cutting valuable trees must be taken by the extended family.

76. Mishra, Anupam, and Satyendra Tripathi

Chipko Movement. New Delhi: Gandhi Peace Foundation, 1978.

Describes movement of village people, especially women, to protect and manage forest resources.

77. Mohamad bin Jamil

"Plantation Forestry--Vehicle for Rural Development." Malaysian Forester 42 (1979): 354-364.

The author discusses the successes of the FLDA (we are not told what these letters stand for) land settlement/land development programs that make them a model for the country. Trees are a natural crop for Malaysia's ecology and can easily be integrated with agriculture, grazing and other needs of the rural small-holder. The establishment of a FLDA scheme is relatively easy where the necessary land is taken from forest reserves. The major problem in this case is having enough expertise on hand to adequately supervise the program. In shifting and slash and burn areas, land claims are already established and the villagers must first be won over to the program. The attempts of the Sabah Forest Development Authority (SAFODA) to combine economic development by organizing FLDA type programs in areas of deforestation are plagued by the fact that there is very little uncommitted land. Such programs will have to hire specialists who understand the local communities. The type of tenure to emerge is not discussed.

78. Murdia, Ratna

"Forest Development and Tribal Welfare: Analysis of Some Policy Issues." In Socio-Economic Effects and Constraints in Tropical Forest Management, ed., E.G. Hallsworth, pp. 31-41. Chichester: John Wiley, 1982.

In 1978, the prime minister underlined the need for uniting the tribal people in bringing large areas under forest to restore the ecological balance by giving the tribals a right to the trees and their use in an assigned area. Current forest policy would deprive tribals of their age-old right of livelihood by converting their rights into concessions. Emphasis on commercial plantations for wood industries has resulted in neglect of tribal peoples' needs, such as fuelwood, housing materials and fodder. (India; ICRAR)

79. National Forestry Council

"Forest Policy for Peninsular Malaysia." Malaysian Forester 43 (1980): 2-7.

A publication of the National Forestry Council's recommended forest policy that was endorsed by the Malaysian National Land Council on April 10, 1978. The forests are divided into three categories: 1) protected forests; 2) productive forests; and 3) amenity forests. Only the second is open to agriculture, logging and other commercial uses. How the forest land in this category is to be transferred to users was not discussed. The policy statement only says that adequate security of tenure must be created through an area being declared a permanent forest estate.

80. Nowak, K., and Polycarpou, A.  
"Sociological Problems and Asian Forestry." Unasylyva 23 (1969): 19-23.

The authors present a negative view of swidden agriculture. The Philippines' program of land for the landless is described as becoming "land for the lawless." (ICRAF)

81. Olofson, Harold  
"An Anthropological Approach to Social Forestry." In Monthly Forum in Social Forestry at the Bureau of Forest Development. Quezon City, Philippines, 1967.

The author defines social forestry as "an activity of a culture-bearing and symbol-sharing social group which has the ultimate effect or aim (intended or unintended) of lessening the pressure which a human population is bringing to bear on natural forest resources through more efficient and more intensive use of land." Agroforestry is defined as "trees in support of agriculture." In some areas traditional agroforestry rotation included sacred groves, where swidden cannot be made for the lifetime of the person who declared it sacred and his spouse. This means of restoring fertility is threatened by Christianity.

Among the Ifugao, in the swidden stage the land being used is not owned by the one making the swidden, but rather the cultivator has only the right to use its products. But when a family member decides to grow a wood lot on this swidden, it becomes recognized by all families in the watershed that it is now owned, as a piece of land, by that individual, and its boundaries will be clearly demarcated for all to see. When the wood lot becomes aged and completely harvested, it can be reconverted to swidden. The question of "ownership" on reconversion is not discussed.

82. Panday, K.K.  
"Importance of Fodder Trees and Tree Fodders in Nepal." Thesis. Federal Technical University, Zurich, 1977.

Leasing individual fodder trees by some farmers occurs in parts of Nepal. Rents can reach 300 rupees a season for a fully grown tree.

83. Pant, M.M.  
"Social Forestry in India." Unasylyva 31 (1970): 19-24.

Farm forestry is tree culture in association with agriculture. Rural forestry is forestry activities on community and village lands, degraded forests, road and railways sides and canal banks for the benefit of rural people. In farm forestry, the land is usually privately owned, while in rural forestry it is communal. The protection of each planted area depends on ownership rights as perceived by the individual and rural population as a whole. In the case of private farms, the property rights are well defined and involve individuals. Protection of trees is more difficult under the vague ownership of communal areas. The effective protection of trees, particularly on roadside plantations, can be ensured by the allotment of trees to local individuals. Such individuals should be allowed to share in the benefits from trees under their protection. The annual produce of fruit, flower and seed trees should be given to them free or at least at minimal cost. In addition, they should also be given a share from the profits derived from the sale of the trees. (India; ICRAF)

84. Pant, M.M.  
"The Impact of Social Forestry on the National Economy of India." International Tree Crops Journal 1 (1982): 69-92.

The main objective of farm forestry is to release cow dung for its legitimate manurial uses in the field and to create a firewood resource within

the farm itself. It provides an extra source of revenue for the farmer and enhances his/her self-sufficiency. Farm forestry is tree culture in association with agriculture. Rural forestry is forestry activities on community and village lands, degraded forests, road and railways sides and canal banks for the benefit of rural people. In farm forestry, the land is usually privately owned while in rural forestry it is communal. The protection of each planted area depends on ownership rights as perceived by the individual and rural population as a whole. In the case of private farms the property rights are well defined and involve individuals. Protection of trees is more difficult under the vague ownership of communal areas. The effective protection of trees, particularly on roadside plantations, can be ensured by the allotment of trees to local individuals. Such individuals should be allowed to share in the benefits from trees under their protection. The annual produce of fruit, flower and seed trees should be given to them free or at least at nominal cost. In addition, they should also be given a share from the profits derived from the sale of the trees. (India: ICRAF)

85. Pant, Madan M.

"Harvesting Water From Ravaged Sinaliks in India." In Forest and Watershed Development and Conservation in Asia and the Pacific, ed. Larence S. Hamilton, pp. 411-484. Boulder, Colorado: Westview Press, 1983.

The forests in this area are "reserved," and heavily burdened with rights and concessions. One concession is made to local farmers who are given grazing and timber rights for a specific number of animals per household. It has been found that forest use is as much as ten times higher than permitted. Villagers have now volunteered to protect the catchments from further damage. Only brief mention is given to land tenure.

86. Pongsapich, Amara

"The Development of the Concept of Land Ownership and its Consequences in Thung Kula Boughi Area." Paper presented at the Second Thai-European Research Seminar, Saarbruecken, Federal Republic of Germany, 1982.

Traces the history of land ownership. The transition from communal tenure to private land ownership has not been appropriate in North East Thailand where villagers were in danger of losing their cultivatable land for failing to follow the proper procedure. Conflict arose with foresters when land tax receipts were assessed to indicate title to land.

87. Purohit, M.L.

"Consolidation of Holdings, Land Tenure and Related Problems in Agro-Forestry." In Proceedings of the Summer Institute on Agro-Forestry in Arid and Semi-Arid Zones. 1981.

As the history of taungya provided is erroneous, the caution of caveat emptor should be applied to this article. A history of land legislation in Rajasthan is given. Under uncertain tenure arrangements, farmers could not think of planting trees. After independence, peasants grew trees on their own land but before land was transferred to the peasantry, the trees were cut down, sold and converted into unreported cash. Fragmentation prevents tree planting. Trees were an obstacle to consolidation, as individuals who had trees on their plots wanted plots with trees of the same age. Agroforestry was well received after consolidation. (India: ICRAF)

88. Ramsson, Robert Eric

"Closing Frontiers, Farmland Tenancy, and Their Relation: A Case Study of Thailand, 1917-1973." Ph.D. Dissertation. University of Illinois at Urbana-Champaign, 1977.

Author's abstract: The central aim of this dissertation is twofold: (1) to document the patterns of farmland tenancy in Thailand in the period from

1937 to 1973 and (2) to relate these patterns to one of their principal determinants, viz., the extent to which expansion in farmland area has progressed. The basic sources of data are Thai agricultural censuses and sample surveys.

A simple model of farmland tenancy is developed. Ricardian rent theory is used to show that a tendency should exist in a region or country for the area of farmland yielding significant economic rents to increase as a result of expansion in total farmland area, i.e., expansion that converts lower grades of new land into farmland of similarly lower quality. Since in general tenancy can only occur on farmland yielding significant economic rents, one result of expansion in farmland area can be increased farmland tenancy. Other explanatory variables in this model include population density and average fixed investment in farm operations.

Basic findings of the study include the following: (1) the tenancy ratio (i.e., the ratio of tenanted farmland area to all farmland area) for the whole kingdom increased from 11 percent to 13 percent during the period from 1947 to 1973, (2) the median tenancy ratio for all changwats (provinces) increased from 8 percent to 10 percent in the same time period, and (3) a highly significant relationship (established using regression analysis) exists between the tenancy ratio and the ratio of farmland area to total land area for samples of changwats.

The outstanding feature of agricultural development in Thailand has been the steady and fairly rapid expansion in farmland area. Evidence is presented suggesting that this expansion can only continue for a relatively short time. The frontier of expansion has been closed in the Inner Central Plain region already for a number of years. (This is also the region where tenancy ratios are highest.) In any case, as expansion continues in the other regions, tenancy is likely to become more widespread relatively, according to the established relationship. Additional regression analysis demonstrates that in recent years population density on farmland has become a relevant determinant of tenancy ratios also. Thus, tenancy ratios are likely to increase on this count too, according to the degree that farmland expansion slows down and population density rises with continued population growth.

Finally, one chapter of the dissertation presents an analysis of the probable impact of the Thai Land Reform toward reducing the extent of land tenancy. In brief, the conclusion of this chapter is that the Land Reform at least in the near term is likely to have only negligible effects in reducing tenancy ratios.

89. Reddy, Amulya Kumar

Information Needs for Planning Rural Fuelwood Projects

In traditional land use, wood lots are on non-arable land. If such land is not available, trees are restricted to borders of fields, water bodies, roads and so on. If this land is adequate for tree planting, conflict between arable and pasture needs and fuelwood needs will arise. Land inequalities negatively affect fuelwood projects. The poor, being the least likely to get a proportionate share of the fuelwood, are less willing to contribute voluntary labor. Their land hunger may reduce available fuelwood land since excess land from large holdings is rarely distributed; rather, pasture land or land under tree cover is given to the landless.

If land is made available for a fuelwood project, it is important to predict how land ownership will affect distribution of the fuelwood produced, particularly whether the poor will benefit. If borders are used, it must be determined whether most of the product will go to those whose lands are enclosed by the border trees or whether another principle of distribution will be used.

90. Reyes, Gregorio D.

"Agri-Silviculture: A Multiple Use Alternative." Canopy 4 (1978): 8-10.

A general summary of agroforestry in various countries, with more detail on several projects in the Philippines. The general rules of land allocation are discussed. Land tenure issues emerge as important due to the socioeconomic potential of continuous and multiple use during a complete tree-crop rotation. (Philippines)

91. Rice, Delbert

"Upland Agricultural Development in the Philippines: An Analysis and a Report on the Ikalahan Programs." In Adaptive Strategies and Change in Philippines Swidden-Based Societies, ed., Harold Olofson, pp. 73-89. Quezon: Forest Research Institute, 1981.

Philippine land law prohibits the release of any lands with a slope of more than 10 degrees above the horizontal for tilling. A farmer who cannot expect to obtain legal rights to the land he is cultivating will use it as long as he can while searching for other land. When this land is abandoned, it is usually too exhausted to provide for the growth of any forest trees. However, many of the Kalinga have the custom of requiring any person who harvests wood for building or for fuel to replace the trees harvested by planting new ones in their place. (Philippines: ICRRAF)

92. Richardson, S.D.

Forestry in Communist China. Baltimore: Johns Hopkins University Press, 1966.

This is a thorough description of regional forestry and reforestation in China, circa 1963. Major species, including *Pinus korarensis*, *tabulae* forms, *massoniana*, and *eucalyptus gilo bulus*, and *citriadora*, are also discussed. Land tenure is briefly referred to in the section titled "Private Forestry." Richardson feels that the area of forest under government control is and will continue to increase. (China: FOREST PRODUCTS LAB)

93. Rimando, Elpidio F.

"Why Agroforestry?" Canopy 3 (1977): 9.

The author looks at future population trends and cites the number of square meters each Filipino will have in the year 2000. The author does not discuss the details of how this land is to be owned or controlled. The general plea that makes up this article ends with the statement "... on agro-forestry we either survive or perish."

94. Romm, Jeff

"Toward a Research Agenda for Social Forestry." Indian Forester 106 (1980): 164-188.

As a set of technologies or economic opportunities, social forestry can be applied to lands in accordance with their socio-ecological capabilities. As a government program, its application also depends on the legal status of the land. The legal status of the land carries with its implied prescriptions of proper use an arrangement of rights and responsibilities between different public and private parties, an assignment of administrative responsibilities within government and a range of possible policies that government can use to promote the national interest.

A map of social forestry development based on technical, social and economic considerations would be quite different from one based on land tenure. Growing discrepancies between legal designations and realities of land use are important reasons for the growth of social forestry interests, for the insecurity they create, both among villagers and within the

government, underlies natural resource deterioration. Tenurial arrangements are a fundamental concern in social forestry, primarily because they often interfere with the professional application of land management planning principles.

Three general areas for research emerge: 1) assess the technical and socio-economic capability of land for social forestry; 2) study the relationships between legal tenures and current land uses; and 3) experiment with new tenurial and arrangements and their impact on land use. The patterns of land use probably do not conform to the law, but probably also are different than they might be if there were no law. If this is due to how the law is administered, then it would be useful to know how different forms and degrees of administration affect compliance. It may also be due to people's perception of their rights and duties on different lands. If so, knowledge of these perceptions can help to design laws that people find compelling. The influence of law can be determined by analyzing uses of legally different but otherwise identical lands across a range of contrasting social and ecological institutions. (India; ICRAF)

95. Romm, Jeff

"The Uncultivated Half of India: Part I." Indian Forester 107 (1981); 1-23.

If the way land is classified reflects how it is viewed for policy, then the general policy purpose for uncultivated land is not to promote productive land use but to protect property jurisdictions. Land policy pegged to property lines may neither address land as an economic resource nor productively shape the motives of those who use the land for economic ends. Current property lines rarely indicate who actually uses uncultivated lands, how these lands are used and what their potential may be. Policies designed to protect these boundaries commonly conflict with economic pressures. In doing so, they contribute to insecure expectations about who will benefit from the fruits of longer-term investments and sacrifices they require. They encourage short-term exploitation of land resources. Villagers will not plant or protect forests, however much they value them, if they are not sure that the eventual forest produce will be theirs. There is a need for unified land management despite multiple tenure arrangements. (India; ICRAF)

96. Romm, Jeff

"The Uncultivated Half of India: Part II." Indian Forester 107 (1981); 69-85.

There are large discrepancies between the conditions of management assumed in present administrative structure and those actually prevailing on common lands. Forest departments have been developed as custodians of more than 20 percent of India's lands on the assumption that these lands are forested, unoccupied, with insufficient land pressure to endanger regulatory controls. But more than half the area is denuded, overgrazed, and under private rather than public control. Nonetheless, the custodial orientation continues to dominate the territorial and functional organization of forest department activities. There is a need to survey tenurial arrangements.

97. Rosario, Emilio A.

"The Need for Flood Plain Management." Canopy 5 (1979); 2-3.

Flood plain control and use is an area agroforestry could help. This article is a proposal for action. The land tenure issue it raises is the need of a census of private ownership in the flood plain to find out which owners are capable financially of developing their plots. These owners should be assisted through long-term development loans. All others should be advised to sell their lots. (Philippines)

98. Ross, Lester

"Obligatory Tree Planting: How Great an Innovation in Implementation in Post-Mao China." In Joint Committee on Chinese Studies of the American Council of Learned Societies and the Social Science Research Council Workshop on Policy Implementation in the Post-mao Era, (Ohio State University, Columbus, Ohio: June 20-24, 1983). Purdue, Indiana: Purdue University, 1983.

In 1981 the Obligatory Tree Planting Program was created. It was the first Chinese tree planting program designed to mobilize in a "campaign" format with the backing of the National People's Congress (NPC). This formed a "novel marriage of legal obligations and moral suasion" (page 1). This program has not been successful, however, and this paper discusses the reasons for the rise and fall of the OTP.

Empty public lands, roadways and tourist locations have been the focus of planting in 1981-82. A very interesting discussion of the world "obligation" provides insights into the view of the individual and state rights in PRC.

Brief mention of tenure problems associated with reforestation on common lands is given. In particular, the post-Maoist strengthening of property rights is seen as making this type of reforestation scheme less practicable. (China: LTC)

99. Samapudhi, Krit

"Thailand's Forest Villages." Unasyuva (Winter 1974-5); pp. 20-23.

Author's abstract: The forest village system developed by Thailand's Forestry Industry Organization offers hill tribesmen and others who practice slash-and-burn agriculture considerable inducements to settle down. One of its principal aims is to keep a steady labour force on hand for the long-term needs of forestry, while at the same time providing rural families with an income and other benefits from the kind of farming they choose to practice. (Thailand: ICRAF)

100. Schebesta, Paul

Among the Forest Dwarves of Malaya. London: Oxford University Press, 1973.

Each man has several trees which are regarded as his private property and which only he can use, although he may share the produce with others. Fruit which is lying on the ground even inside an enclosure is considered a common good.

101. Schuler, Sidney

The Women of Baragoani: The Status of Women in Nepal, Volume II, Part 5. Kathmandu: Centre for Economic Development and Administration, 1981.

Non-cultivated land including forests belonged to individual villages and combinations of villages. Ownership depended on the location of the resource, the history of its use, and the outcomes of various disputes and battles. Contemporary usufruct rights and patterns of use derive mainly from the traditional patterns. In the study village some households own a few poplar trees from which they get wood for houses and furniture building or peach or apricot trees.

102. Seth, S.K.

India and Sri Lanka Agroforestry. Rome: Food and Agriculture Organization, 1981.

In most of the hills in India where shifting cultivation is practiced, there is an absence of a well-defined land tenure system. The rights of ownership by the community or by individuals are recognized traditionally and vary from tribe to tribe and place to place, but in general they are not

transferable or inheritable. Land records are usually lacking. In the case of community ownership, the headman exercises some rights over allocation of individual areas, but has no ownership rights. Lack of ownership rights is identified as a disincentive. It is recommended that the land tenure system not be changed radically so that the authority structure, which lies behind the social behavior built into the community structure, is not disrupted. The taungya system, described as exploitative of the landless and the poor both in concept and in operation, is examined in both India and Sri Lanka. (ICRAF)

103. Shimotori, Shigeru

"Trends and Some Problems of Private Forestry in Hokkaido Since World War II." In The Current State of Japanese Forestry: Its Problems and Future, pp. 87-95. Kyoto: IUFRO, 1981.

Statistics on different types of ownership--small holder, corporate, and national--are given with an explanation for these ratios. In this region, unlike the other major Japanese forest (Honshu), there are no common rights to forests. (Japan: FOREST PRODUCTS LAB)

104. Shiva, Vandana; Sharatchandra, H.C.; and Bandyopadhyay, J.

"The Challenge of Social Forestry." In Towards a New Forest Policy: Peoples' Rights and Environmental Needs, eds., Walter Fernandes and Kulkarni Sharad, pp. 48-72. New Delhi: Indian Social Institute, 1983.

The Kolar special forestry scheme in Karnataka, India was intended to reforest public and private lands. The private lands were all to be marginal for agriculture and were planned to cover 60 percent of the area in the scheme. The main species farmers are encouraged to plant is eucalyptus. Current evidence indicates that farmers have responded to the scheme so enthusiastically that 1) more than 60 percent of reforested lands are privately owned, and 2) reforestation is occurring on currently productive agricultural land, and 3) employment is decreasing.

A discussion of common property is also given. (India: ITC)

105. Soetianegara, Ishemat

"Socio-Economic Aspects of Forest Resource Management in Indonesia." In Socio-Economic Effects and Constraints in Tropical Forest Management, ed., E.G. Hallsworth, pp. 73-86. Chichester: Wiley, 1982.

In reforestation, the local people employed in the taungya system tend to damage the young trees to prolong their stay on the forest land to raise their crops. In revegetation of unproductive agricultural lands, the local people also tend to damage trees because they need fuelwood, they dislike the tree species, or they are against the rehabilitation project because they could not grow their own crops. The forest road network created by the logging companies has promoted the spread of shifting cultivation. (Indonesia: ICRAF)

106. Spencer, J.E.

Shifting Cultivation in Southeast Asia. Berkeley: University of California Press, 1977.

The following general principles of land and tree tenure hold among shifting cultivators in Southeast Asia. Ownership of the whole land area claimed rests in common among all individuals, living and unborn, who are acknowledged as members by the rest of the group. Ownership is conceived as applying to all lands in the territorial unit, whatever their utility, and ownership is held in perpetuity, without reference to the frequency of specific land use. Inheritance takes place within the lineage group. Land cannot be alienated to an outsider temporarily or permanently.

All land not held in a specific private tenure is public domain and tenure is by usufruct only. Utilitarian and productive trees planted by the occupant of a plot of ground during his tenure become the private property of the planter by right of planting. Successive occupants of the same plot of ground may neither destroy nor harvest the produce. The produce remains the private property of the planter during the life of the trees, and the trees may be inherited should they outlive the planter. Group memory concerning tenure rights normally is effective for four generations. Land tenure is changing toward land management, permanent-field cropping practices and systems of private ownership. There is limited evidence that the concept of private ownership of trees has been employed to gain control over land in a way counter to traditional patterns. When sufficient trees are planted on specific plots so that the resulting groves or orchards decrease the utility of the plots as garden sites in other cropping patterns, a change is evident in the concept of land control. (ICRAF)

107. Srivastava, B.P.

"A New Dimension in Forest Management in the Himalayas." In Man and Forest: A New Dimension in the Himalaya, eds., Krishna Murti Gupta and Desh Bandhu, pp. 1-18. New Delhi: Today and Tomorrow Printers and Publishers, 1979.

The land tenure issue mentioned in this paper is that "the present practice of supplying timber and other forest produce to right holders in the form of standing trees and collection rights in the forests has to be progressively abolished" (page 5). The author suggests possible commutation of traditional rights and definite curtailment of rights. The author concludes that the "extension approach would be to win over small farmers . . . and to encourage them to tree farming (fruit and fodder trees) rather than crop husbandry" (page 8). (India: MEMORIAL)

108. Suchiang, F.

"Forest Development Corporation of Meghalaya and the People." In Man and Forest: A New Dimension in the Himalaya, eds., Krishna Murti Gupta and Desh Bandhu, pp. 191-195. New Delhi: Today and Tomorrow Printers and Publishers, 1979.

The reforestation plan outlined in this paper is by a "corporation" for forestry management of both reserved and nonreserved forests. The corporation's goal is to reforest all of the barren hills in Meghalaya with valuable forest species. A profit-sharing formula for reforestation has been implemented for private land, whereby 50 percent of profits will return to the corporation, 40 percent will go to the land owner, and 10 percent will go to the district council. It is unclear who bears the cost of the reforestation. A description of employment generated by this scheme is also given. (India: MEMORIAL)

109. Suganob, Romulo

"Reforestation Problems in the Province of Cebu." Canopy 6 (1980): 45.

Reforestation started in Cebu province in 1916, and land tenure problems have proved to be among the most difficult. Squatters on the land do not cooperate, or actively contravene forestry efforts. The most troublesome are those who till land held influential absentee claimants. Those claimants living in the city of Cebu have subsistence farmers on their land to secure their claim. People tenaciously hold on to their plots, believing that sooner or later the land will be released to them by the government. Forestry workers are said to enter the area and do their work at their own peril.

Some form of agroforestry is seen as the only solution, as the 1975 Revised Forestry Code (P.D. No. 705) gives secure title to squatters on the land they held before 1975. It is hoped that once certificates of such tenure are issued, the farmers will lose some of their reluctance to participate in forestry activities.

110. Tang, H.T.; Haron, H.A.H.; and Cheah, E.K.

"Mangrove Forests of Peninsular Malaysia--A Review of Management and Research Objectives and Priorities." Malaysian Forester 44 (1981): 77-86.

Mangrove forests account for only 1.5 percent of Malaysia's total forest area, but in terms of return per hectare they are among the most valuable. Strict licensing arrangements must be maintained as regeneration from logging operations (largely for charcoal production) is less than expected. Further, mangrove replacement should be included as part of the proposed plans for aquaculture.

111. Tuazon, Raul

"Land Tenure, Agrarian Reform, and Upland Deforestation in the Philippines." Draft manuscript, 1984. (ICRAF)

Land reform in the Philippines has so reduced the total income of certain classes of farm workers and tenant farmers that they have been forced to take up shifting cultivation in the uplands, leading to deforestation.

112. Tucker, Richard

"The Historical Context of Social Forestry in Western India's Western Himalayas." Journal of Developing Areas, in press.

A history of forest exploitation, management and regulation in Kumaon. Conflict between villagers' needs and practices and colonial and national regulation are described. The need for grazing land, agricultural land and fuelwood and other forest products are points of contention. Social forestry began in the 1920s as a result of a crisis in this conflict. The beginning of the Chipko movement is described.

113. Tucker, Richard

"The Forests of the Western Himalayas: The Legacy of the British Colonial Administration." Journal of Forest History 26 (1982): 112-123.

A history of the Himalayan forests from the time of the Gurka invasions. Conflict between villagers and colonial and national authorities and between various national bureaucracies over forest use are described. The beginning of the chipko movement is noted.

114. Uhlig, Harald

"Problems of Land Use and Recent Settlement in Thailand's Highland-Lowland Transition Zone." In Conservation and Development in Northern Thailand, eds., Jack D. Ives, Sanga Sabhasri, and Pisit Vorauri, pp. 33-42. Tokyo: United Nations University, 1980.

Legally, all reserved forest land is regarded as property of the crown. Land conflicts arise because many of the settlers find themselves confronted with people claiming property rights to land the settlers had intended to clear. These may be farmers from the nearest previously established village, claiming rights of usufruct forest use, or road and timber workers who claim stakes during the first inroads into the forest. After purchasing their new land from such claimants, the new settlers may think they have acquired property rights, although in reality the former claimant also had little right or none at all to the land the authorities still regard as crown property. It may be equally complicated if traditional claims to swidden land by hill peoples are touched upon. A further problem is interference between different shifting cultivators intruding into one another's protected bush-fallow. (Thailand; ICRAF)

115. Vayda, A.P.; Colfer, Carol J. Pierce, and Brotokusumo, Mohamad  
"Interactions Between People and Forests in East Kalimantan." Impact of Science on Society 30 (1980): 179-190.

Indonesia's land laws include numerous conflicting stipulations (e.g. that local people are entitled to use land in their customary manner; that people residing in timber concessions are restricted to certain areas; that all land within two kilometers of a river is available for use by local inhabitants). Shifting cultivators take advantage of the fuzziness of laws by continuing to cut forest within the timber concessions. Likewise, company personnel try to work the system to their own advantage by saying that shifting cultivators have interfered with their operations, and therefore they should be allowed to log more tracts per year than is stipulated in their contracts. Cutting and selling ironwood from within a concession is legal if tax is paid to the subdistrict. Cutting other kinds of wood within a concession is legal only if a royalty is paid to the concession owner. These royalties are rarely paid, as there are few enforcement personnel. Illegal cutting is controlled by confiscation of the wood, with some compensation to the cutter. There is informal agreement within the area that most cutting is done to feed or house one's family, and therefore is an honest and proper activity even if it is inconsistent with the formal rules. (Indonesia; ICRAF)

116. Velasco, Abraham B.  
"Socio-Cultural Factors Influencing the Utilization of Mangrove Resources in the Philippines: Fishpond vs. Other Uses." Canopy 5 (1979): 11-12.

The last of a three-part article in the same journal on the sociology of mangrove use. The thrust of the article is on problems associated with implementing and enforcing the Fisheries Decree of 1975 (P.D. No. 704) whereby leases are to be given by the government for fish pond development. These leases are for five years and are renewable only if there is a demonstration of commercial viability.

The Forestry Reform Code (P.D. 705) provides that 100 m strips along edges of the sea, lakes, and rivers are to be set aside for erosion control. The author says that these legal provisions adequately provide for mangrove conservation, but that they will need stricter enforcement. No other tenure arrangement than the lease is discussed.

117. Velasco, Abraham B.; Velasco, Artemio M.; and Macaseat, Rosalina M.  
"Prospects of Community Forest as a Tool for Social Change: Tatlic-Arwas Case." Canopy 8 (1982): 3-12.

The authors report on a study of the multiple factors involved in trying to implement community forestry in the Tatlic-Arwas area. Land tenure figures only in the conclusion that people have to learn how to change attitudes toward land ownership and land use privileges to express more cooperative behaviors. Community forestry is seen as grappling with many interlocking social, economic, and political processes. China and Korea are cited as successful examples.

118. Veracion, V.P.  
"Hill Goat Farming in Benguet Pine Forest." Canopy 4 (1978): 3.

A brief summary of a pilot project in the Benguet pine forest to determine carrying capacity and management styles best suited to goat farming under trees. Goat farming is promising as a labor-saving strategy in weed and underbrush control; however, over grazing has led to erosion problems. The land tenure issue briefly discussed is that in the area, forest grazing is open to all and is uncontrollable. The author also mentions that the majority of the animals are owned by "the richer people," but gives no further information.

119. Warner, Katherine

"Swidden Strategies for Stability in a Fluctuating Environment: The Tagbwana of Palawan." In Adaptive Strategies and Change in Philippine Swidden-Based Societies, ed., Harold Gofson, pp. 13-28. Quezon Forest Research Institute, 1981.

Traditionally, individuals perceived no need to keep track of who was doing what to the land they had previously used, since there was an abundance of accessible land. Forest was regarded as a free good to which there were usufruct rights; courtesy demanded that one ask permission to use a fallowing field, but in practice such a request was never refused. Traditional rights were based on the concept that everyone should have rights to the fruits of their labor rather than rights to any particular piece of land. Immigrants, along with timber and mining interests, are now appropriating the land and the forest and may well bring to an end the traditional conservationist system and establish in its place the exploitative system responsible for widespread deforestation, flooding and aridity in other parts of the Philippines. (Philippines: ICRRAF)

120. Weinstock, Joseph A.

"Rattan: Ecological Balance in a Borneo Rainforest Swidden." Economic Botany 37 (1983): 55-68.

Luangan buyaks clear forest, plant food crops for a one or two year cycle and then plant rattan before leaving land to fallow. According to customary law, the man who originally cleared virgin jungle and later his descendants will have permanent rights to that land. By planting rattan in swidden left for fallow, the farmer can legally maintain his claim to the land. The Indonesian government does not recognize this system of land tenure. As the law now reads, only land that has a crop on it can be claimed. If the land no longer has a crop, such as fallow swidden land, then no one has a legal claim to the land and it reverts to the public domain. (Indonesia: ICRRAF)

121. Weinstock, Joseph A.

"Land Tenure Practices of the Swidden Cultivators of Borneo." M.S. Thesis. Cornell University, 1979.

Two patterns of traditional land tenure are observed among swidden cultivators of Borneo. In the most common form, the rights to land use are vested permanently in the lineage of the original clearer of virgin forest. Fragmentation or sale of land are considered rare. In the other, less common, form of land tenure, permanent rights are not established. A family has the right to cultivate a plot until all crops are harvested, at which point the rights revert back to the village group at large.

The practice of planting rubber trees is changing these traditional patterns; permanent rights are vested in the person planting rubber trees, often accompanied by formal government title.

122. Weinstock, J.A., and Vergara, J.

"The Land or the Plants? Agricultural Tenure in Agroforestry Systems." Submitted to Agroforestry Systems.

Discusses the differences between systems of plant and land ownership in Indonesian Borneo and Papua New Guinea. Emphasizes the need for culturally acceptable agroforestry practices.

123. Wiersma, K.F.

"Tree Gardening and Transya on Java: Examples of Agroforestry Techniques in the Humid Tropics." Agroforestry Systems 1 (1982) 54-76.

The article covers two contrasting types of agroforestry on Java: tree gardening, found on private land using traditional methods of multistratified

cropping, and taungya, based on state forest land. Farmers are said to recognize that there are higher total yields in the mixed forest cropping. In fact, the intensity of involvement in the mixed forest gardens increases as the size of the holding decreases to the point where it reaches 0.15 hectare per head, at which point subsistence annuals are chosen. In the case of sharecropping, annual crops are chosen because of insecurity over future yields.

In the taungya system (locally called tampangsari), the forest service tries to appeal to landless farmers, contracts with the farmers, assigns plots that average .25 hectare, and approves the crops to be planted. In addition, the participating farmers are paid by the forest service for tree planting and tending. The farmer clears and interplants between alternating rows of teak (*Tectona grandis*) and *Leucaena leucocephala*. Tree tending continues for three years after intercropping period. A farmer's tenure lasts only as long as he participates in the program. (Java; ICRAF)

124. Willan, R.G.M.

"Khumbu-Country of the Sherpas." *Unasylya* 21 (1967), 3-9.

Certain members of the Sherpa community were designated to report any person who cut trees without permission from the village council. Fines were imposed for wrongdoing, and were paid in the form of beer. (Nepal; ICRAF)

125. Yadev, Ram P.

"The Socio-Economic Consequences and Constraints to the Use of Land and Forests For Energy and Organics." In Biological and Sociological Basis for a Rational Use of Forest Resources For Energy and Organics, ed., Stephen G. Boyce, pp. 48-52. Asheville, NC: Southeastern Forest Experiment Station, USDA Forest Service, 1979.

The author describes life in the hills where people depend heavily on government owned forest for fodder and grazing for animals, fuelwood for cooking and wood for construction. He describes the enforcement of a forest plan in which the village government officially took over forest ownership and prohibited the villagers from grazing their animals in order to protect the forest. Villagers protested that the forest was an integral part of their subsistence system without which they would perish.

LATE ADDITIONS

126. Chen Zhimin

"State Wildland Rights Consolidate the Responsibility System." Chinese Forestry, Beijing, May 1981.

(Note: The following is an excerpt from the Chinese translation by Nick Menzies, Department of Forestry and Resource Management, University of California-Berkeley.)

"The Central Committee of Communist Party of China and the Peoples Congress have published the 'Decisions on Questions Relating to Forest Protection and the Development of Forestry.'

"The Decisions state clearly that commune members must be allocated private plots of wildland, for growing trees and forage, and deeds of ownership should also be issued. The area allocated will depend on the situation of the commune. In general, five to fifteen percent of a brigade's wildland will be allocated.

"Allocation of private wildlands does not mean 'dividing the land up between each household.' Ownership of the land remains with the collective. Commune members have the right to use it and may only use it to plant trees and grow forage. They are not allowed to clear land for grain crops. If they do not follow this rule, the right to use the land reverts to the collective.

"The Decisions state: 'All trees planted by a commune member around their home, on their private plot, or any other place specified by the collective, shall remain the private property of that individual and may be inherited.' This carries on the tradition expressed in the proverb, 'The first generation plants trees, their grandchildren enjoy the shade.'

"In forestry run by the collectives, we will popularize a responsibility system based on specialized contracts and incentives based on production.

"The exact form of contract will be decided on a case by case basis. In general, for wildlands owned by communes or brigades, anything that may appropriately be managed at the production brigade level should be contracted out to the production brigade. If inappropriate, management may be undertaken by the commune, the brigade or by a specialized brigade. Forests owned by production brigades may be contracted out to specialized groups, specialized households, or to individuals specialized in this work. Individual trees may be the responsibility of individual commune members. Trees at the dies of fields or intercropped with agricultural crops shall be contracted out together with the fields. Some mountains suitable for planting trees, owned by the production brigade, can be contracted out to specialized reforestation groups or may be managed on the principle of 'the household that plants is responsible.'"

127. Yang Shiping

"Carry Out the Spirit of 'Three Settlements' in Wildlands, Plant and Protect Forests." Chinese Forestry, Beijing, May 1981.

(Note: The following is an excerpt from the Chinese translation by Nick Menzies, Department of Forestry and Resource Management, University of California-Berkeley.)

"Chanjiapo brigade, Xinshi Commune, Meitan County in Quizhan Province is a semi-mountainous district. There are 242 mou of bare mountain suitable for reforestation and 285 mou of forestland. In the past, due to deficiencies in

management, there was severe illegal and uncontrolled cutting and logging. To change this situation and to protect the existing forest resource we have been managing the forest since June 1980 on the basis of principles of economics and by carrying out the 'Three Settlements' (settlement of rights in wildlands, settling the allocation of private plots of wildland and settling the responsibility system for managing collectively owned wildlands). Results have been encouraging. The details are as follows:

"Establishing rights in wildlands following investigations at the level of the production brigade.

"Where ownership has been established there was no change. In cases of dispute, settlement was reached after careful on the spot investigation. In cases of recent reforestation, rights were allocated on the basis of who had done the planting, with regard to how much work had been put into the reforestation effort. Where state forests had been established on bare land, the rights reverted to the state where due process had been pursued and where documentation was available. Where there were disputes with the collective and where the benefits should belong to the collective, the benefits will be allocated according to the value of the forested land. In other cases a contract was made between the state and the brigade so that a part of the reforested area would be managed by the collective owning rights to the land, which would then receive the benefits accruing from that land.

"Where the brigade used labour to establish forest plantations and where plantations or specialized work groups have been established, we must continue to ensure that benefits will be distributed at the time of harvest according to the labour put in. Where specialized groups have not been set up, it may revert to production brigade ownership in relation to the amount of labour contributed. Where it is inappropriate for a brigade to manage the land, it reverts to commune ownership. When ownership had been established, deeds of ownership were issued by the County People's Government."

128. Torres, F. and J.B. Raintree

"Agroforestry Systems for Smallholder Upland Farmers in a Land Reform Area of the Philippines: The Tabango Case Study." Working Paper No. 18. Nairobi: ICRAP, 1984.

Two forms of land use predominate in the case study area: ecologically sound and sustainable large scale coconut-based tree crop systems and small scale upland cultivation of field crops which, under present technology, is subject to a severe degradation syndrome. In part of the study area large landowners are expanding their tree crop holdings by using the labor of landless farmers to plant trees in return for the right to cultivate annual crops until the canopy closes over and forces them out. Rather than remain as wage laborers in the tree crop system of the hacienda, most farmers would prefer to move on to another patch of land under this private sector "taungya" type of system.

In other parts of the study area where the government's Operation Land Transfer program is in effect, tenant farmers are given the opportunity to obtain eventual title to the land they have traditionally cultivated as tenants. The problem is that such holdings are usually too small (under 2 hectares) for families who must meet their daily subsistence needs to contemplate a transition to the tree crop system. The upland field crop technology, on the other hand, is showing signs of severe erosion and fertility decline and is unlikely to be sustainable in the future.

Confronted with the paradox of sustainability without equity versus equity without sustainability, a multidisciplinary team of ICRAP scientists and other scientists from the ASEAN region undertook to apply ICRAP's Diagnosis and Design methodology (D&D) with the specific aim of devising a productive and sustainable agroforestry land use system for OLT participants. This case study reports on the findings of the D&D team and presents a proposal for an R&D project to develop and test, through participatory on-farm experiments

with backup from on-station researchers, the "alley cropping" technology envisaged as having the potential to sustain the productivity of the upland cropping system, thereby enhancing the impact of the land reform effort.

129. Capistrano, A.D. and S. Fujisaka  
"Tenure, Technology and Productivity of Agroforestry Schemes." Philippine Institute of Development Studies. Working Paper 84-06, 1984.

Insecurity of land tenure is generally thought to adversely affect the adoptability of agroforestry practices, but at least one study reports that farmers classified as "risk takers" who had prior familiarity with agroforestry practices were observed to plant agroforestry crop combinations even in the absence of tenure security.

Legal title to land seems not to be a major concern of upland tribal populations in the Philippines, where customary tenure arrangements more than adequately meet local needs--at least until an external threat is felt, usually from government or from lowland migrants. The granting of individual titles is not necessarily a way of ensuring that upland smallholders keep their land, but in fact may hasten the loss of land to wealthy uplanders, migrant lowlanders and/or speculators.

A number of Philippine land tenure laws, regulations and decrees are reviewed, including the renewable 25 year "stewardship" contract now available to forest communities under the Bureau of Forest Development's new Integrated Social Forestry Program, which appears to be an interesting community-based alternative, usually involving some form of agroforestry management plan.

Although the question needs further investigation, this review suggests that security of tenure for upland cultivators does indeed lead to more productive and environmentally sound land management practices.

130. Wilson, E.H.  
A Naturalist in Western China. London: Methuen and Company, 1913.

In China, varnish trees and the varnish they produced were the property of the ground landlord and not the tenant who holds the land.

131. Lin, K.Y.  
"The Economics of Yau Life." Lingnan Science Journal 18:4 (1939): 409-423.

Forest lands in Yau-ling Pai are privately owned, but there are a few which are owned by the public. Some lands owned by the rich but lying idle are open to cultivation of cedar trees by the poor. The trees then belong to the planter while the land belongs to the owner.

LATIN AMERICA

1. Ampuero, E.P.

"Ecological Aspects of Agro-Forestry in Mountain Zones: The Andean Region." In International Cooperation in Agro-Forestry: Proceedings of an International Conference, eds., Trevor Chandler and David Spurgeon, pp. 77-94. Nairobi: DSE and ICRAF, 1979.

Land tenure reforms have contributed considerably to the increased number of small property owners in the marginal areas. There are few areas devoted to forests. Intensive land use has led to the deforestation of steep slopes for food production. (ICRAF)

2. Araquistain, Roberto

"Potential Use of Wet Tropics Soils in the Atlantic Zone of Nicaragua." In Workshop Agro-Forestry Systems in Latin America, Proceedings. Terribal, CATIE, 1979.

A study of present day use of the wet tropics in Nicaragua (including a typology of vegetations and soils) with a strong emphasis on the need for planning and creation of development projects based on an adequate coordination of land quality, type of utilization and form of land property (not completely specified, but author stresses need for research relating these three issues).

Underlying key issues are: the extreme fragility of the wet tropics' ecosystems and low soil fertility. For these reasons, planning and management are considered crucial in general (private sector included; perennial crops and extensive cattle raising); but planning is especially recommended for peasants settlement projects under Agrarian Reform; emphasis is placed on road infrastructures and on property divisions being indoneous for the different kinds of agricultural activities.

Peasant cooperatives for running each sawmill's project, as well as marketing and consumer cooperatives are considered all essential parts of the planning projects. (Nicaragua: LTC)

3. Bishop, John P., and Blakeslee, Joe

Development of a Sustained-Yield Tropical Agroecosystem: Integration of Crop Livestock and Forest Production in a "Mixed" Small Farm Production System in the Upper Amazon Basin. Quito: Summer Institute of Linguistics, Amazon Center, 1975.

The author describes a field project designed to raise productivity and improve soil fertility in the Upper Amazon Basin (highest population density), where small farm units are presently being settled. Usually operating under shifting cultivation.

The project, located between Quito, Ecuador and Iquitos, Peru is regarded as a natural laboratory and is expected to be extended to other areas of the Central Andean Region. Also dominated by a small farm production system. The project has two goals: 1) to develop 50 hectares of self-sufficient family farms within the context of tropical agriculture, and 2) to develop a field-orienting training program to teach and demonstrate improved agricultural practices within a small farm production system.

Agricultural improvement is analyzed in terms of achieving a better integration of animal and crop husbandry in systems of mixed farming with replacement of unproductive natural fallows by a resting break under a productive pasture. Animal production on cultivated pastures play an essential part. (LTC)

4. Bishop, John; Hudgens, Robert; and Gow, David  
Dynamics of Shifting Cultivation, Rural Poor, Cattle Complex in a Humid Tropical Forest Life Zone. Research Note, no. 2. Washington, DC: Development Alternatives, Inc., 1981.

This paper analyzes the causes of large scale deforestation in the humid tropical forests in Panama by studying the Sona district. The traditional shifting cultivation-rural poor/cattle complex is considered by the author as the direct cause of soil erosion, which is the major source of natural resource degradation and human impoverishment. The slash and burn agricultural process per se, however, is not seen as detrimental to the ecosystem, but as potentially providing an optional balance between tropical forest and "a man-made mixed cropping system." It is the combination of extensive cattle ranching expansion (dominated by large ranchers) and the migratory shifting cultivation carried out by small farmers that the author considers crucial for the exhaustion of the agriculture/cattle frontier and for the degradation of already colonized lands; small farmers clear forests to establish usufruct rights over the land, lacking capital to buy cattle, they plant faraqua grass and "sell" these usufruct rights to large ranchers who use the land for extensive cattle grazing. As soil deterioration increases, fallow periods are shortened and pressured to migrate (repeat the cycle). Presently, migration is directed towards remaining Caribbean forests and urban centers, and the author predicts that, within two decades, Panama will exhaust most of its forest reserves, if this system is to continue.

The article closes with a plea for sound land management; integrated land use management programs which would involve the use of forest grazing technologies within existing production systems; it also recommends a series of concerted alternative technologies and crops combinations to solve the ecological and sociological problems of the area.

5. Blaut, James M., et al  
"A Study of Cultural Determinants of Soil Erosion and Conservation in the Blue Mountains of Jamaica." Work and Family Life: West Indian Perspectives, eds., Lambros Comitas and David Lowenthal. New York: Doubleday Anchor, 1973.

Based on a small sample of men and women concludes that soil erosion projects fail because they do not distinguish between men's and women's labor, incomes and responsibilities. Women exert influence to plant crops they can market, rather than men's tree crops (which would prevent soil erosion).

6. Bruce, John W.  
Family Land Tenure and Agricultural Development in St. Lucia. (LTC Research Paper no. 79.) Madison: Land Tenure Center, 1983.

Family land tenure is the ownership of land by many related co-owners. These are co-heirs and descendants of co-heirs to land which upon inheritance has not been divided, but retained in co-ownership over generations. The tenure is found in a number of Caribbean nations. The paper notes that non-farming co-owners claim shares in the production of perennials (coconut, breadfruit, and mango) on family land. Whether banana plants are subject to such claims is a matter of controversy. The claims cause numerous disputes. They also affect land use decisions, in that many farmers have fragmented holdings with some parcels under family land tenure and others under individual ownership. Tree crops tend to be planted on the individually owned parcels, whether or not these are most appropriate parcels in terms of soils, slope, location, etc.

7. Budowski, Gerardo  
"The Socio-Economic Effects of Forest Management on the Lives of People Living in the Area: The Case of Central America and Some Caribbean Countries." In Socio-Economic Effects and Constraints in Tropical Forest Management, ed., E.G. Hallsworth, pp. 87-102. Chichester: Wiley, 1982.

The main problem in managing forest land for protection is that most people who have been farmers (including cattle ranchers practicing extensive

grazing) consider national parks and protected watersheds as limiting their traditional rights. Protection restrictions have been successful in the case of the Maria Tecum Forest in Guatemala because it is the property of the municipality governed by a respected council of elders. (ICRAF)

8. Campos Romero, Rene

"System of Rural Settlement 'Jenaro Herrera'." In Informe sobre Seminario FAO/SIDA sobre Ocupacion Forestal en America Latina. Rome: FAO, 1976.

This historical and detailed demographic study of the rural settlement "Jenaro Herrera" (1973) analyzes the transformation of that area from traditional agriculture (slash and burn with a period of cultivation of 2-3 years) and manual wood-extraction into a joint development project of the Peruvian and Swiss governments. The forestry development objectives are in accord with the general forestry policy of Peru; the utilization of the renewable natural resources of the region through the integration of forest and agrarian activities, as well as cattle-raising, fishing and wildlife resources, with a priority being given to socially-owned enterprises or cooperatives. In terms of land tenure, the project combines (1) 36 individually owned farming plots (8-40 hectares each) with short-term credits available to settlers through the Agrarian Bank, as well as project technical assistance, (2) 18 individually owned cattle raising plots (100 hectares each) with 60 hectares dedicated to partners and the remaining 40 to woods, the processing and marketing of these products (timber, milk, cheese) done through a cooperative (Cooperativa Agraria de Servicios), (3) individually owned family gardens to supply the settlers' and village's own needs, and (4) the creation of a socially-owned enterprise (empresa de Propiedad Social Jenaro Herrera) based on the national use of forest resources to elaborate wood products through industrial processes of mechanical transformation. Total extension of area: 30,000 hectares; total employment provided: 350 people. (Peru)

9. Cornick, Tully R.V.

"The Social Organization of Production in Quimag, Ecuador: A Case Study of Small-Farmer Production Systems in the Highland Andes." Ph.D. Dissertation. Cornell University, 1983.

There are three forms of tenure: ownership, rental, and share-tenancy. The management accorded any piece of land will vary according to the type and legitimacy of tenure held and the social relationships of the individuals holding it. Individual ownership is the most common. Associative or collective ownership (granting ownership to judicially recognized communities, cooperatives and associations) is less common and suffers from a lack of legitimacy at the community level and under traditional normative structures. The farther one lives from the center of the community, the greater the dominance of informal ownership. Ownership under the informal system, when locally recognized, gives the owner unrestricted rights of disposal not available under the formal legal system (which requires that bordering neighbors be given the right of first refusal in any land sale), usufruct, and the right to regulate access. Collective ownership is rapidly reverting to traditional individual ownership.

As originally conceived, lands granted to legally recognized peasant organizations were inalienable and indivisible and were to be directly exploited by members of the organization. In fact, all major expanses of collectively owned property have been partially or totally subdivided into individual parcels belonging to the members, as poorer members strive to gain individual control over their plots to prevent their usurpation by wealthier members. For example, in one cooperative wealthier members used hired laborers and draft animals to exploit the forest for firewood at an extravagant rate. Poorer members could do so only at the rate permitted by cutting and carrying firewood on their own backs or perhaps on a single horse or burro. There was a fear that the predominant exploitation of the commons by a few members would eventually result in their de facto and legal possession of the commons. Wealthy farmers similarly get access to others' land by clearing it.

Sharecropping previously was a stable form of tenure, and tenants made improvements on their sharecropped land. With agrarian reform, tenancy is insecure and improvements are no longer made. Usufruct is commonly retained by parents when granting land to their children. This cements family solidarity and prevents the children from selling the land and abandoning their parents in their old age. Eucalyptus trees are planted as boundary markers. (Ecuador; CORNELL)

10. Costa, Alan Stanley

"Some Developmental Implications of Alternative Land Tenure Systems in the Mexican Pacific-North." Ph.D. Dissertation. University of California-Davis, 1977.

Author's abstract : This study interprets the developmental experience of the agricultural sector of the state of Sinaloa, Mexico. Specifically, three different sets of land tenure institutions found in Sinaloa are examined. Each of the three sets of institutions places a different emphasis upon individual rights in property. The three land tenure systems are private property agriculture, the individually worked ejido, and the collective ejido.

The Sinaloan experience serves as an interesting though limited specific test of several propositions with respect to the relative economic efficiency of different land tenure systems.

The study indicates that where property rights in land are attenuated, agricultural units are accordingly less efficient, in two senses. First, it appears that price efficiency wanes as the degree of attenuation in property rights increases. Second, technical efficiency, i.e., the position of the unit isoquant, suffers when attenuation is increased. These findings suggest that land tenure institutions are an important dimension in development programs. This dimension is often ignored in development theory, e.g., Fei-Ranis, and Dale Jorgenson.

The study also suggests that continued land redistribution in Mexico will reduce the growth rate of the agricultural surplus and thereby depress the prospects for sustained economic development.

11. Denevan, William M.

Causes of Deforestation and Forest and Woodland Degradation in Tropical Latin America. Report to the Office of Technology Assessment, Congress of the United States, Assessment of Technologies to Sustain Tropical Forest and Woodland Resources. Washington, DC: U.S. Office of Technology Assessment, 1982.

The author investigates at depth the major causes of deforestation in Tropical Latin America, which, he says, are primarily a consequence of cattle ranching and not of small-scale shifting cultivation (Tropical Africa and Asia) or commercial logging (Asian Tropics). Since the rapid expansion of cattle ranching is tied to the U.S. market (especially in Central America) as well as to government and international assistance, the author recommends restricting exports and eliminating incentives to inhibit this massive method of forest degradation.

As for shifting cultivation, the author elaborates a typology in terms of length of past fallow and also of traditional (stable) vs. pioneer (unstable or degenerative) shifting cultivation. This last type, more destructive than the former of local resources, is considered by the author to be closely related to present land tenure systems in Latin America which directly favor the act of deforestation by traditionally tying this act, or other "improvements," to the right of possession of land. This encourages squatters and migratory shifting cultivators with no knowledge of local environments who tend to have unstable agroecosystems. Deforestation is also encouraged by a de facto situation of non-enforcement of forest laws protecting flora and fauna, when these laws exist.

The author considers traditional systems of forest agriculture (natives), agroforestry and certain forms of intensive agriculture to be better methods to support more people on a sustained basis, than either pioneer shifting cultivation or cattle ranching. He recommends true land reform (to alleviate the effects of population pressure and to use good land for basic food production instead of using it for export crops or pasture) and criticizes present government actions, such as the building of highways through forests, the tolerance of spontaneous colonization and the actual promotion of colonization, that are labelled "land reform" programs.

12. Denevan, William M.

"Swiddens and Cattle Versus Forest: The Imminent Demise of the Amazon Rain Forest Reexamined." Studies in Third World Societies 13 (1981): 25-44.

The author discusses at length the causes of forest destruction in the Amazon region which he centers on the association of terminal shifting cultivation with cattle ranching. He constructs a typology of shifting cultivation (long fallow, short fallow, bush and grass fallow, terminal and integrated, agroforestry systems) and evaluates each type in terms of its potential for forest destruction or regeneration. He analyzes critically the present characteristics of cattle ranching in the region and concludes with a series of detailed recommendations for a sound tropical land management which he equates with integrated shifting cultivation (with perennials or livestock), also designated by him as "the agroforestry option," this option is at present almost non-existent.

Given the low population pressure on the frontier and the high inputs (labor and capital) required for intensive agriculture, recent migrant farmers, who ignore fallow ratios or fertility maintaining techniques appropriate for local conditions, occupy forest lands in this region and practice terminal shifting cultivation: early cessation of the crop fallow cycle on a given plot of land. Despite land availability in the frontier, however, lengthy forest fallow seldom occurs today. The author emphasizes that the real problem lies not in the abandoned swiddens (which could revert to forest fallow or used for plantation crops), but in the fact that they become available, at low costs to cattle ranchers who maintain the vegetation in grassland. Thus, an extensive form of land use, shifting cultivation, is replaced by an even more extensive form of land use: cattle grazing. It is clear for the author, contrary to common belief, that if this type of shifting cultivation offers the greatest threat to tropical forests, this is not because of the farmer, but because of subsequent cattle production, which prevents forest regrowth. The article includes a thorough review of the literature on shifting cultivation and cattle ranching in Latin America, as well as pertinent data for both types of land use.

13. Duncan, Ted Wesley

"Adaptive Strategies of Swidden Cultivators in Western Honduras." Ph.D. Dissertation. Wayne State University, 1978.

Author's Abstract: The focus of this study is a ladino population that lives in San Juan, in the western highlands of Honduras. An estimated 92 percent of the approximately 470 households depend primarily on swidden cultivation for subsistence. The remainder rely on wage labor, salaries from the national or municipal governments, or commerce.

Most of the present inhabitants of San Juan are pioneers, or are descended from pioneers, who were attracted by relatively free access to land. Contemporary San Juan manifests all of the characteristics of an "open" peasant community, except there is no privately owned land. All residents, by nature of their membership in a corporate land owning group, have access to land and natural resources for subsistence. For this right, no fees and only negligible taxes are paid. Neither the residents of San Juan, nor the municipal government that represents them, pay taxes directly to the national government.

In 1973, the lumber industry was established in San Juan. The immediate effects were increases in the availability of wage labor and cash circulating in the local economy and an expansion of commercial activities. More importantly, however, a municipal ordinance was passed that reduced the amount of land available to swidden cultivators. The potential for even more dramatic changes in San Juan lies in the existence of La COMDEFOR, a nationally owned corporation that was formed in 1974 for regulating and exploiting forest resources. If La COMDEFOR is successful in achieving its goals, swidden cultivation will effectively end in San Juan, and much of the population will be transformed into wage laborers in the lumber industry.

14. Foster, George M.

A Primitive Mexican Economy. Monographs of the American Ethnological Society, 5. Seattle: University of Washington Press, 1966.

Land is communally held among the Sierra Popoluca of South-Eastern Mexico. Garden plots are chosen and worked for several years and then fallowed. The land then reverts to communal ownership. Trees, however, are considered private property. A plot of land may be gardened by different households over the years, but the tree crops on the plot belong to the original planter. The advent of commercial coffee farming has created a permanent system of tenure. Coffee trees are longer-lived than most other cultivated species in the region, and growers generally replant dead or diseased trees. Although it is asserted that the trees themselves and not the land on which they grow constitute private property, it is, in practice, difficult to separate the trees from the land on which they grow.

15. Grasmick, Joseph

"Land and the Forest-Dwelling South American Indian: The Role of National Law." Buffalo Law Review 27 (1979): 759-800.

This article does not discuss agroforestry as such, but the land tenure problems faced by forest dwelling populations of South America. Because of land pressure, economic development interests and political factors, the forest dwellers are being encroached upon on all sides and their very existence is threatened. Therefore, they must turn to national land tenure institutions. Unfortunately, these national legal systems, based as they are on the Civil Code inherited from colonial times, are not well equipped to meet the challenges offered. The author feels that as groups are contacted, ethnographic surveys should be done to determine the size of forest territory needed to sustain a traditional lifestyle and welfare. Their territories should then be inscribed in a national registry. The rights must be vigorously enforced if they are to have any effect in the face of wholesale encroachment on forest reserves. (LTC)

16. Guess, George Morley

"The Politics of Agricultural Land Use and Development Contradictions: The Case of Forestry in Costa Rica." Ph.D. Dissertation, University of California-Riverside, 1977.

Author's Abstract : This study examines the relationship between the implementation of agricultural policies and the attainment of development objectives in Costa Rica. Historically and presently, agricultural development policies have favored large agro-export and beef-cattle interests through credit allocation, infrastructural spending and tax benefits. Utilizing the development measures of productivity (contribution to societal objectives per hectare of land use), employment (absorption of surplus labor, provision of off-farm labor opportunities to the very small farmers and workforce capability), and distribution of wealth (increasing the availability of savings and investment for growth), it is evident that current policies are not contributing to development.

By focusing on the issue of tree-farming and the forest-based industrial sector, it is clear that present policies are implemented at the expense of workers, rural poor and small and medium-sized farmers. The study seeks an accurate description and explanation of how an important opportunity such as forestry is consistently excluded from the agenda for development when it is evident that benefits from the traditional agro-export strategy do not serve long-term development objectives.

17. Hecht, Susana B.

"Agroforestry in the Amazon Basin: Practice, Theory and Limits of a Promising Land Use." In Proceedings of the International Conference on the Amazonia. Cali, Colombia, 1982.

An appraisal of agroforestry practices in the Amazon basin founded on a detailed technical study of the different agroforestry systems in the region. The main obstacle to agroforestry expansion in the Amazonian countries is related to the development goals in those areas (accelerated clearing and deforestation), which go accompanied by a process of land commoditization, rather than its production. In the Brazilian Amazon, "as many as 90 percent of the land titles . . . are held by individuals or corporations outside the region." These economic groups lack tropical experience and are primarily interested in land speculation. Such a speculative economy offers little incentives for the establishment and/or maintenance of agroforestry systems. Given the magnitude of the problem, a recommendation is made to develop agroforestry research as an interdisciplinary ecological approach that mostly include agronomists of all kinds, anthropologists, geographers, rural sociologists, as well as economists. (Brazil; STEENBOCK)

18. Jones, Jeffrey

"Socio Cultural Constraints in Working With Small Farmers in Forestry: Case of Land Tenure in Honduras." In Short Course in Agro-Forestry in the Humid Tropics. Turrialba, Costa Rica: INFORAT, 1982.

This article discussed the contradictions between the Honduras forestry legislation, the patterns of land ownership and the forest use by small peasants. It is argued that the first two aspects combine unintentionally to discourage an optimal forest use by peasants as well as to impede an effective use and protection of the forest.

Consequently, deforestation is encouraged by the combination of two factors, which also work against the spread of agro-forestry practices among Honduran peasants (very rare in contrast to other Central American countries): 1) state control over production and marketing of all wood, and 2) the absence of land titles and present land recognition of land rights on the basis of usufruct. Given that 80 percent of Honduran peasants do not own any land, it is common practice that migratory peasants occupy forest land to establish temporary farms and, thus, sell their "improvements" (burning for pasture) as one of their few possibilities for capitalization. This practice excludes plantation of slowly maturing crops and makes most rational for peasant producers the wasting of lumber; state control can be easily escaped by peasants engaged in the cutting of wood to be sold as firewood, and their returns are highest by using this alternative. (Honduras; LTC)

19. Leguizamo, Alberto

"On-Going Agro-Forestry in Bajo Calima Buena Ventura, Colombia." In Workshop on Agroforestry Systems in Latin America, ed., G. de las Salas, pp. 130-134. Turrialba: Centro Agronomico Tropical de Investigacion y ensenanza, 1979.

The author describes the setting up (but not the results) of an experiment comparing agroforestry on public, community, and private land with paid workers. (Colombia; ICRAF)

20. Macdonald, Theodore

In Report on Community Forestry Workshop, ed., Harry Blair. Washington, DC: USAID, 1982.

Since the development of the tropical lowlands is relatively recent, colonists are eager to establish land claims, and Indians are worried they will be dispossessed. The principal means for claiming and defending land is to demonstrate that it is somehow "productive." Where social forestry is recognized by authorities as a legitimate productive activity and thereby a means to guarantee land tenure, one can expect acceptance and success of individual and community projects. The greatest incentive to become involved in social forestry lies in relating such projects to the process of obtaining title to one's land. The long term security offered by permanent possession can override the temptation to reap high immediate returns from ecologically destructive activities. Strategies to accomplish this are recommended. It is also pointed out that communities may be hesitant to become involved in any activity that increases the value of land previously viewed worthless by elements of the national society who have previously usurped much of the valuable lower regions--improvement could therefore be seen as an invitation for usurpation.

21. Maurer, Harry

"The Amazon: Development or Destruction?" NACLA 12 (1979): 27-37.

An initial and fairly detailed study of Brazil's "dictatorship style of economic development" through the 1960s and up to the late 1970s, focussed on government policies (and different government agencies) towards the Amazon.

The bulk of the Brazilian Amazon is now owned by the government, and the National Institute of Colonization and Agrarian Reform (INCRA) administers land distribution. In theory, INCRA channels massive influx of landless peasants (900 families per day in some federal territories) into orderly colonization projects, assigning a 100 hectare plot to each family and giving peasants legal titles to the land. In practice, this action is mediated by land speculators who clear forest and claim ownership titles to be sold to peasants (small plots) and to huge cattle ranchers or other kinds of large producers. Since INCRA would have to go to court to declare titles invalid and new "owners" are often rich and powerful groups, property questions are often settled by "extra-official means" (actually using force against the peasants). The fact that property boundaries were never surveyed in Amazon countries contributes to create a "byzantine tangle of land tenure for INCRA to unravel."

This state of affairs affects also some existing old peasant settlements, as in the Acre State (end of 19th century), where investors have managed to "own" 80 percent of the land by means of treating original owners as squatters and using all means available (sheer force) to expell them from their lands. The original settlers lived on subsistence crops and tapping the trees on more or less independent basis. Now they often have to return to their lands to work as peons on ranches owned by outside powerful groups. Their labor conditions are dreadful, resembling prisoners under labor contractors.

The author relates this massive land speculation--which inevitably results in massive deforestation--to an increased interest in export goods (meat) and the planting of fast-growing trees to be harvested for cellulose, pulp and plywood.

The article includes, as well, a description of the systematic destruction of the Amazon Indians and a discussion of the ways in which their land sovereignty is being done away with, mainly by massive road construction through their tribes' land. The National Indian Foundation (FUNAI) acts de facto as an accomplice of government policy towards the Indians. (Brazil; LTC)

22. Millon, Rene F.

"Trade, Tree Cultivation, and the Development of Private Property in Land." American Anthropologist 57 (1955): 698-712.

The emergence of private ownership of land among the Sierra Popoluca of Southern Veracruz, Mexico is traced to the growth of commercial coffee farming. Traditionally, trees belonged to the original planter or his descendants. Until the introduction of coffee farming, trees were grown in an isolated fashion rather than in groves. The planting of a large grove of coffee trees creates effective private ownership of the land. Technically, only the trees are private property, in practice, it is difficult to separate the trees from the land on which they are planted.

23. Mitchell, William P.

"Social Adaptation to the Mountain Environment of an Andean Village." In Hill Lands: Proceedings of an International Symposium, ed., J. Luchok, pp. 187-198. Morgantown: West Virginia University Books, 1976.

Land tenure is related to adaptation to the mountain ecosystem. There are three tenure systems: communal, private and hacienda. In the moist forest zone and higher, land tenure is communal. The land belongs to the formally recognized rural community and technically is distributed by the president of the community. In actual practice, however, this land is inherited by children. However, if land is left idle, ownership reverts to the community, i.e., to those who have fulfilled all their communal and religious obligations. A person cannot sell his use rights in communal land.

The real meaning of communal tenure in the higher altitude zones is not that everyone can cultivate there, but that the entire community has the right to utilize the wild products produced during the long fallow period. People from the montane savanna can thus exploit the terrain for fuel, herbs, and other materials, even though they do not have any cultivation rights. The person with cultivation rights cannot prohibit this use of the land. In the montane savanna and montane thorn steppe, there is a short fallow and thus fewer wild products. The few important wild plants belong to the person on whose field they are located. Only the owner of the field has the right to use these plants. Consequently, most fields in these zones are under constant cultivation and tenure is private, except in a few areas where haciendas own the land. (Peru: ICRAF)

24. Murray, Gerald

Mountain Peasants of Honduras: Guidelines for the Reordering of Smallholding Adaptation to the Pine Forest. Tegucigalpa: USAID, 1981.

Customary (community recognized) ownership is based on clearing a plot of land. Such ownership is perceived as including the right to sell although it may be couched in terms of selling improvements rather than the land itself. A recent sawmill project has eliminated the peasants' right to cut pine even on what they perceive as their own land. This causes considerable resentment when the same land is stripped for the sawmill's use. Further resentment is caused by the allocation of certain harvesting rights to an exclusive subgroup. Afforestation for fuelwood must be based on the clear understanding that what the participants plant will be theirs.

25. Murray, Gerald Francis

"The Evolution of Haitian Peasant Land Tenure: A Case Study in Agrarian Adaptation to Population Growth, 2 Volumes." Ph.D. Dissertation. Columbia University, 1977.

This work is the most detailed available on land tenure and changes in access to land in Haiti. Agroforestry issues are not discussed in any explicit detail as they are in his later work. (Haiti; LTC)

26. Murray, Gerald F.

"Cash-Cropping Agro-Forestry: An Anthropological Approach to Agricultural Development in Rural Haiti." In Haiti: Present State and Future Prospects. Racine, Wisconsin: Wingspread, 1982.

Most Haitian laws that deal with trees emphasize prohibition against cutting trees or the need to secure permission and/or pay a tax for the permission of cutting a tree. There is a tradition of planting and caring for fruit trees, but a wood tree is defined as something that grows by itself. No one would feel inclined to treat as a crop a piece of vegetation for whose harvesting one could theoretically be thrown in jail. One problem with agroforestry projects was that the people thought either the government or the donor agency owned the tree. A major factor in a successful project was the repeated assurance that the peasant owned the trees he/she planted. (Haiti; ICRAF)

27. Nabhan, Gary Paul, and Sheridan, Thomas Edward

"Living Fencerows of the Rio San Miguel, Sonora, Mexico: Traditional Technology for Floodplain Management." Human Ecology 5 (1977): 97-111.

Author's abstract: In Southwestern North America, agriculture is limited by both arable land and available water supplied. In the upper Rio San Miguel, as well as in other narrow river valleys of eastern Sonora, Mexico, floodplain farming is dependent upon living fencerows for its environmental stability. Propagated fencerows of willow and cottonwood maintain, extend and enhance floodplain fields. These ecological filters also protect fields from cattle, harbor agents of biological control of pests and provide renewable supplies of wood.

28. Nations, J.D., and Nigh, R.B.

"Cattle, Cash, Food and Forest: The Destruction of the American Tropic and the Lacandon Maya Alternative." Culture and Agriculture 6 (1978): 1-15.

Blame for the eradication of tropical forests is often placed on population growth and expansion of indigenous agriculture. In fact, swidden agriculture is simply the intermediate step in the process of forest destruction. This process consists of replacing tropical rainforest with grassland to support the cattle export business. It is this situation--the expansion of extensive cattle production--not indigenous food production that must be halted if the rain forests of Latin America are to survive the next twenty years. Means of acquiring rain forest land for cattle production including the abuse of the ejido system are described. (Mexico; ICRAF)

29. Ramsahoye, Fenton H.W.

The Development of Land Law in British Guiana. Dobbs Ferry: Oceana Publications Inc., 1966.

Prior to 1917, trees growing on a boundary property were owned in common by the adjoining proprietors. The Conservator of Forests can grant leases to obtain forest produce for three years on up to 3,000 acres.

30. Rees, John David

"Forest Utilization by Tarascan Agriculturalists in Michoacan, Mexico." Ph.D. Dissertation. University of California-Los Angeles, 1971.

Author's Abstract: Most village wood products are hand tooled from the five pine species. The several oaks are used almost exclusively for charcoal making. Other broadleaf species formerly used for artisany have been nearly eliminated by excessive cutting.

31. Roys, Ralph L.

The Indian Background of Colonial Yucatan. Carnegie Institute of Washington, Publication No. 548. Washington, DC: Carnegie, 1943.

Among the Maya of Yucatan individual trees and groves of trees were inherited.

32. Ruddle, Kenneth

The Yukpa Cultivation System: A Study of Shifting Cultivation in Colombia and Venezuela. Berkeley: University of California Press, 1974.

Land tenure rights are complicated, and range from communal forms to individual freehold. Each tribe has a recognized territory in which members of other subtribes may not exploit any form of resource. The total subtribal territory is conceived of as belonging to every member of the subtribe, with all use rights vested in the social group. Non-cultivable land and Poulsemi amata belong to the social group as a whole and tree alienation by individuals is forbidden. Individual adult males exercise unrestricted control over cultivatable land. This control is extended not only over land in cultivation, but also over forest- and fern-fallow areas, which may not have been cultivated for generations. Real property rights do not end with the return of the land to fallow or the death of planted perennial trees. Rights to real property can be transferred by inheritance, gift, loan, exchange and rental (either in the form of labor, or a percentage of the crop, or both). Wood for any use is obtained from areas in fallow and places where timber is killed by uncontrolled farm burning. Women do not have property rights to land. (ICRAF)

33. Saint, William Staver

"The Social Organization of Crop Production: Cassava, Tobacco and Citrus in Bahia, Brazil." Ph.D. Dissertation. Cornell University, 1977.

Author's Abstract : An understanding of organizational and institutional arrangements inherent in crop production systems is necessary to develop agro-technologies that will not increase inequality. To gain such understanding, a methodology for the study of small farm agriculture was elaborated based on a combination of ecological and Marxian perspectives, the study of traditional agriculture, an understanding of limiting factors, and the creation of problem-specific typologies. In this context, a farmer's choice of crops is viewed as a major technological decision that has social organizational and institutional ramifications. Therefore, crop production systems were defined on the basis of the farm's predominant crop in terms of arable land occupied.

The study was conducted in the Bahian Reconcavo area of Northeast Brazil and was based on 182 interviews from a stratified random sample of small farmers grouped according to crop production system. Three major crop production systems were identified: cassava--a subsistence crop, tobacco--an export crop, and citrus--a cash crop for domestic urban consumption.

Three hypotheses guided the study: (1) different crop production systems, as differentiated by the predominant crop, will be characterized by different modes of agricultural production, (2) differences in quality of life will exist among crop production systems, and (3) some crop production systems will display higher rates of emigration than others. All three hypotheses were confirmed by the study.

Social organization of crop production, also called the mode of agricultural production, was defined to include organizational and institutional arrangements contained in four relationships: producer-crop, producer-producer, producer-community, and producer-state. Producer-crop relations refer to each crop's requirements for labor, land, capital and technology as well as the various means employed to gain access to these factors. Producer-producer relations entail the social division of labor and

the organization of work. Producer-community relations comprise both marketing systems and community social structure. Producer-state relations are reflected in the agricultural policies for each crop as they pertain to research, credit, extension, provision of inputs, marketing and processing. Marked differences in each of these relationships were observed among the three crop production systems studied.

The process of structural change in local agriculture was analyzed to determine its causes and possible future trends. Major causes were identified as government social welfare policy, introduction of a new forage grass, government agricultural policy, decreased isolation, and major changes in fertilizer supply. Some factors created a disequilibrium in the social relations and ecological balance of the traditional production system, whereas other factors provided strong incentives for change once these weaknesses appeared. Present expansion of modern commercial agriculture has effected a shift in political power from rural landowning elites to urban commercial groups. Concurrently, local patron-client relations are being replaced by state patronism. In the future, it is expected that the tobacco export sector will become more capital intensive. On small farms, increased specialization of both labor and production is likely. As the above favorable conditions continue to stimulate the expansion of commercial agriculture, further proletarianization and land concentration seem probable.

34. Sellers, S.

The Relationship Between Land Tenure and Agricultural Production in Turcurrique, Costa Rica. Turrialba, Centro Agromómico Tropical de Investigación y Enseñanza, 1977.

There are three categories of people holding land rights. 1) Those with no legally recognized rights include a) precarista--an illegal squatter whose right of access is recognized by his peers, who may petition for title after using the land for ten years; b) denuncio--squatter on government land; and c) prestado--a person who borrows land with the consent of the owner with no agreement of rent. Generally they are restricted to planting seasonal crops, but the sneaky person will try to plant perennial crops to get possession of the land or compensation for the crop. The ethics of borrowing differ when land is borrowed from close kin and when it is borrowed from haciendas. 2) Those with legal rights to the produce of the land are called derecho--squatters with rights of access and use. A certain degree of permanency can be obtained by planting permanent crops on the land. 3) Those with a legally recognized title to the land itself are called título. Those who plant perennial crops are more likely to have title to the land. Those with borrowed land who plant perennial crops are more likely to have close kin ties with the title holder.

The kind of agricultural produce and value of the crop are closely related to the form of tenure of the land on which the crops are planted. The relationship is mediated by the fact that cash crops tend to be perennials and require greater investment of capital and time, and also by the fact that local custom and Costa Rican law recognize several forms of land tenure. The relationship between land tenure and agricultural production will depend on local law, custom, crops and environmental conditions.

35. Skar, Sara Lur<sup>4</sup>; Samanex, Neli<sup>4</sup>; Arias, and Cotarma, Saturno Garcia  
Fuel Availability, Nutrition and Women's Work in Highland Peru: Three Case Studies From Contrasting Andean Communities. World Employment Research WEP 10/WP23. Geneva, ILO, 1982.

In the central town there are not extensive communal areas for trees. Either one owns trees or one must buy fuelwood from those who live near other communal areas. The cooperative owns eucalyptus trees which are sold to outsiders. Gleaning the dry branches and shaggy bark from living trees is allowed free of charge. Only men are members and at the death of the member, his widow (unless her son joins) loses her access to fuel and pasture.

Cooperative members can also harvest wood from an area of natural vegetation. Outsiders must pay for this privilege. A third village on the slopes has lost its traditional communal area for wood to a cooperative which seizes some possession of any trespasser found foraging for wood. This can only be redeemed by working for the cooperative for a period of time. This is an example of overlapping tenure systems in the area.

36. Tozzer, Alfred M.

Landa's Relacion de las Cosas de Yucatan, papers of the Peabody Museum of American Archeology and Ethnology, Harvard University, no. 17. Cambridge, MA, 1941.

Among the pre-Conquest Maya of Yucatan fruit trees were owned privately but the land was held communally.

37. Weaver, Peter

"Agri-Silviculture in Tropical America." Unasylya 32 (1979): 2-12.

Eight different agri-silviculture systems currently practiced in Tropical America are compared in terms of their advantages to improve subsistence agriculture, and as alternatives to increased land mechanization in tropical agriculture (which has the limitations of being more costly, of displacing small farmers into urban areas, and of being founded on less sound ecological principles). Land tenure is cited, in general, as a crucial factor to decide among the different agri-silviculture systems. Other determining factors are: climate, topography, soil fertility, proximity to markets and population pressure. Thus, shifting cultivation is viewed as extremely efficient when populations are dispersed. Taungya is said to be usually practiced on public land on loans to farmers. Row trees are used as windbreaks along property boundaries to prevent desiccation of soil and erosion in areas like El Salvador with strong, dry seasonal winds.

Farm-size is analyzed in relation to different tree varieties, and there is the recommendation that preference should be given to fruit and vegetable trees on very small farm units because they provide multiple benefits and are more likely to survive than timber species.

The author strongly recommends the formation of cooperatives for the successful development of an agri-silviculture scheme. The argument is not developed further. (STEENBOCK)

38. Zerbe, John I.; Whitmore, Jacob L.; Wahlgren, Harold E.; Landris, James F.; and Christopherson, Kiell A.

Forestry Activities and Deforestation Problems in Developing Countries. (PASA No. AG/TAB-1080-10-78). Washington, DC: USDA, 1980.

Insecure land tenure is a major constraint to good forestry practice in most of the developing world. The farmer, community and forest concessionaire must have adequate assurance about control over the land on which trees are planted at the time they are ready for harvest. Where farmers are either tenants or shifting cultivators, the insecurity of tenancy discourages long term forest activities. In Bolivia conflict between forest reserve areas and colonization areas, both designated by the government, is a source of difficulty. In Papua New Guinea complex land tenure is a constraint. (USAID/Nairobi)

LATE ADDITIONS

39. Hecht, S.B.

Cattle Ranching in the Amazon: Analysis of a Development Strategy.  
Unpublished Ph.D. dissertation. Berkeley: University of California, 1981.

An exemplary study of the relationship between differential social power and the resulting deforestation in the Amazon basin. The land tenure system is one where the majority of the land is owned by absentee individuals who are investing in cattle ranching once poorer and powerless farmers clear it for cultivation. The insecure tenures of the small farmers mean that they lose their land once it is desired by the cattle industry. There is no incentive to improve land use practices or to cease cutting down the forest. This is a thorough study that is destined to become a classic.

40. Seligson, Mitchell A.

Peasants of Costa Rica and the Development of Agrarian Capitalism.  
Madison: University of Wisconsin Press, 1980.

Coffee was introduced into the Costa Rican economy in 1808. It had by mid-century established itself as the dominate economic activity. With coffee came increasing inequality of land holdings, with small producers turning to cooperative movements in recent decades. Costa Rica took a narrow approach to maximizing coffee production and by the turn of the century the country was importing a major proportion of its food staples. There was no attempt on a large scale to integrate coffee with food crops. Today the rural sector has turned to cattle, banana and sugar production. Coffee which had accounted for up to 90 percent of the foreign earnings has dropped to 25 percent.

41. Denevan, William M.; Treacy, John M.; Alcorn, Janis B.; Padoch, Christine; Denslow, Julie; Flores Paitan, Salvador

"Indigenous Agroforestry in the Peruvian Amazon: Bora Indian Management of Swidden Fallows." Interciencia 9 (1984): 346-357, 6.

The authors report on research among the Bora settlement of Brillo Nuevo on the Yaguasyacu River. Agroforestry is a normal part of their strategy of crop rotation and successional management of the fallow (10 to 20 or more years). Each family in the communal residential unit (*maloca*) clusters their fields of a hectare or less within a portion of the village territory that includes both primary and secondary forest. This clustering makes it convenient to visit more than one field at a time. Each of these fields will be in a different phase of the agricultural cycle. In the first phase the land is cleared leaving all useful trees untouched (e.g., tropical cedar). Orchard trees are interplanted with manioc. In the second phase there is a succession of food crops while the orchard trees mature. In the third phase the Bora harvest the orchard products and useful species within the natural secondary growth. The farming system produces an analogue to the multi-storied canopy of the surrounding forest and allows the Bora to extend through agroforestry what would normally be a one or two cropping cycle to one that lasts nine years or more. As the authors state, "Viewed properly, a swidden site is never completely abandoned as a resource zone."

42. Murray, Gerald F.

"The Wood Tree as a Peasant Cash-Crop: An Anthropological Strategy for the Domestication of Energy," in Charles R. Foster and Albert Valdman (eds.), Haiti--Today and Tomorrow: An Interdisciplinary Study. Lanham, MD: University Press of America, 1984.

This paper is an analysis of a project that has been in place for more than two years and with which the author has been intimately involved from

inception to implementation. An anthropological analysis indicated that the problems facing the Haitian peasant in planting trees (and in many other areas, as well) were the result of "blockages" in the "flows" of agrarian energy, cash and institutional linkages. These "blockages" are erected within Haiti and also by the very donor agencies offering help. Unless there is an anthropologically sound understanding of the situation much of the technical side of agroforestry ". . . degenerates into a deceptive and trivial ritual."

Since it is the peasants who will have to plant trees faster than they are cut down, if the other flow in the Haitian scene is halted (the flow of top soil into the Caribbean), an understanding of their energy, cash and institutional flows and blockages is essential. The controversial and so far unsuccessful project turned to PVCs for institutional superstructure. Fruit trees do not provide the same cash flow potential as wood trees and therefore fast maturing varieties of *Leucaena*, *Cassia*, *Azadirachta*, *Casuarina*, *Eucalyptus* and pine were chosen. Transportation flow problems associated with the delivery of seedlings were overcome by using small containers. At present over a dozen local nurseries have been set up closer to the recipients. The peasant owns outright any tree planted, and can cut at will. Trees therefore present no threat to existing land tenure, or production strategies.

OCEANIA

1. Angus, J.R.

"Forestry in Fiji, American Samoa, New Caledonia, New Hebrides, and British Solomon Islands Protectorate." In South Pacific Commission Technical Meeting on Forestry. Noumea, New Caledonia, 1970.

As prescribed in the Land Act of 1903, all land in Tonga is the property of the crown. It is subdivided into three categories: the royal family estates, the royal estates (together comprising crown land) and hereditary estates, land allocated to nobles. Individual male Tongans can lease, for lifetime, a tax allotment area of 3.3 hectares through the grace of the royal family or a noble. Land in such a category would appear to be a possible source of land for public purposes such as forestry. (ICRAF)

2. Crocombe, Ronald G.

Land Tenure in the Cook Islands. Melbourne: Oxford University Press, 1964.

Each lineage had its own segment of forest which ran from the mountain to the lagoon in a long strip. Major lineage members had foraging rights (apparently excluding timber for building) on minor lineage land. Plantains were held in common by minor lineages. Less important wild fruits were harvested regardless of land ownership. A reforestation project requiring the consent of coparceners (shared inheritance) was begun without requiring proof of that consent. Residents of other islands with land rights in the afforestation areas expect to get a share from the proceeds of the forestry plots. When the missionaries arrived with their cats, the number of island birds declined, leading to increased caterpillar damage on taro.

3. Davidson, John

"Forestry in Papua New Guinea, A Case Study of the Gogol Woodchip Project Near Madang." In Forest and Watershed Development and Conservation in Asia and the Pacific, ed., Larence S. Hamilton. Boulder, Colorado: Westview Press, 1983.

This is a thorough review of forestry in Papua, New Guinea. The Gogol Woodchip Project was designed to produce timber, veneer and chips for pulpwood. A necessary component of the project was reforestation, as the natural forest resource would be depleted in 20 years. The indigenous agricultural production system is shifting cultivation. The reforestation plan called for "enrichment planting" with *Acacia auriculiformis* and *Eucalyptus delupta* among others. Reforestation on clan lands has not been possible, as owners feel they must receive project benefits immediately.

4. Gregor, Ewen W.

"Forest Utilization and Land Tenure: The Fiji Pine Commission." In Forestry in National Development: Production Systems, Conservation, Foreign Trade and Aid, eds., K.R. Shepherd and H.V. Richter, pp. 34-40. Canberra: Development Studies Centre, Australian National University, 1979.

In traditional Fijian land tenure, ownership rests with the group; it cannot be sold or mortgaged. This presents major problems to forestry. The Fiji Pine Commission is the result of attempts to resolve these problems. (LTC)

5. Lamb, D.

"Some Ecological and Social Consequences of Logging Rainforests in Papua New Guinea." In Proceedings of the 11th International Symposium of Tropical Ecology, Kuala Lumpur, International Society of Tropical Ecology, 1980.

In this region, 50 percent of logging royalties are allocated to land owners. This amount, when divided among all owners, is considered inadequate given the adverse environmental changes. (BIOLOGY)

6. Larmour, P.

"Forest Utilization and Land Tenure in the Solomon Islands." In Forestry in National Development: Production Systems, Conservation, Foreign Trade and Aid, eds., K.R. Shepherd and H.V. Richter, pp. 48-62. Canberra: Development Studies Centre, Australian National University, 1979.

Ownership and use of customary lands (88 percent land) is reserved for Solomon Islanders. The history of land ownership in the Solomons is given, along with a case history of Kolombangara Island. (LTC)

7. Reti, Iosefatu

"Land Tenure and Forest Utilization: Western Samoa." In Forestry in National Development: Production Systems, Conservation, Foreign Trade and Aid, eds., K.R. Shepherd and H.V. Richter, pp. 40-48. Canberra: Development Studies Centre, Australian National University, 1979.

Much of the Samoan island of Savai'i used to be forest, but shifting cultivation and natural disasters have altered this. Customary land tenure is the norm, with traditional leaders controlling the right to work the land. Licenses for forestry and reforestation are both current problems, and the reforestation effort in particular is faced with popular apprehension. (LTC)

8. Williams, E.W.

"Afforestation on Maori Land in New Zealand." In Forestry in National Development: Production Systems, Conservation, Foreign Trade and Aid, eds., K.R. Shepherd and H.V. Richter, pp. 13-20. Canberra: Development Studies Centre, Australian National University, 1979.

This article thoroughly explores Maori traditional and modern land tenure patterns. It describes the functioning of the Maori Land Court, which settles claims of ownership, grants freehold title from the crown, partitions land, and legislates inheritance of land. Modernization has occurred, while maintaining communal ownership. One recent trend is to incorporate the communal property, with each traditional owner receiving a proportion of stock commensurate with the strength of his traditional ownership. Afforestation in the context of Maori ownership is also discussed. (LTC)

9. Wood, T.W.W.

"Western Samoa: Country Report." South Pacific Commission Technical Meeting on Forestry, Noumea, New Caledonia, 1970.

Eighty percent of the land is held under customary tenure. It cannot be sold, although it may be taken for public purposes, leased or licensed. It belongs to village communities and is controlled by titled men or chiefs. The village areas are bounded by the seacoast and run inland to the top of the hill, but few are demarcated. Consequently, there are many land disputes brought before the Lands and Titles Courts. Although there is adequate land legislation, there is no land use policy either at the local or at the national level, and no state forest land. (ICRAF)

10. Yauiab, A.M.D.

"Land Tenure and Forestry in Papua New Guinea: Problems and Solutions."  
In Forestry in National Development: Production Systems, Conservation, Foreign  
Trade and Aid, eds., K.R. Shepherd and H.V. Richter, pp. 21-33. Canberra:  
Development Studies Centre, Australian National University, 1979.

Ninety-seven percent of the land in Papua New Guinea is held under customary tenure. This causes certain problems for forestry, which are herein presented. Solutions discussed include recognition of clans as corporations, new legislation to strengthen the legal effects of agreements on land use, and guaranteed employment to clan members selling their land rights. The Madang wood chip project is used as a case study. (LTC)

LATE ADDITIONS

11. McCutcheon, Mary Shaw

Resource Exploitation and the Tenure of Land and Sea in Palau.

Unpublished Ph.D. dissertation. University of Arizona, 1981.

Customary rules governing use of land and sea and redistribution of the products thereof have, in Melekeok, more force over actual use than rules embodied in legally enforced tenure types defining title. Strong customary pressures in usufruct insure protection of investments and distribution of fish and vegetables in accordance with labor input and social obligations.

Privatization of land will not necessarily raise productivity; transport is a major impediment.

12. Haynes, C.D.

"Land, Trees and Man (Gunret, Gundulk and Dja Bining)." Commonwealth Forestry Review 57:2 (1978): 99-106.

Describes an Australian forestry project intended to provide sawmill employment for the Aboriginal population which provoked serious conflict when bulldozer operators disturbed a sacred site.

ANNEX: MAJOR WORKS ON LAND TENURE AND AGRARIAN REFORM

It was considered that it might be helpful for many of the readers of this bibliography to include a sample of major works on land tenure and agrarian reform in the Third World. Most of these works do not appear in the body of the bibliography because they do not deal directly with the relationship between tenure and trees (as a result they have not been indexed). Perhaps the point which this listing makes most clearly is the preoccupation of the literature with distributive issues and the need for far more attention to tenure rules as they affect smallholders' use of their land.

GENERAL

Dorner, Peter

Land Reform and Economic Development. London: Penguin, 1972. Chapter One: "Role of Land Reform in Development Strategy."

Dorner says land tenure is a system of rules and obligations which shape income distribution and reflect social class structure. Land reform programs change those rules to facilitate economic development; income is redistributed and economic incentives are changed to increase productivity. Land reform fulfills economic functions (production, employment, distribution, surplus); social functions (access to accompanying state services); and political functions (broadened political participation). Population pressures, increasing income disparities and rural-urban migration in developing countries increase the need for land reform. Industrialization programs will not solve these problems.

Typical obstacles to land reform include internal factors, political power, lack of rural organizations, ineffective legislation, poorly defined goals, overly complex legalistic procedures, irregular or inadequate financing, an emphasis on substitutes for redistribution (colonization, consolidation, induced sales) and external factors (how international agencies evaluate projects based on economic reform, foreign ownership of land, etc.).

There are few alternatives to land reform. Taxes are unpopular and have little political appeal. They are difficult to impose and may result in increased exploitation of labor. Increased wages can decrease employment and generally require strong rural organizations.

Dorner says land reform might create new interdependencies between the urban and rural sectors as luxury imports decrease, and are replaced by simpler consumer goods. Fertilizer manufacturing can be stimulated and small-scale industry can increase employment. Dorner emphasizes that policies must also strengthen the small farm sector so markets do not continue to favor large farmers as in Mexico and Bolivia. Small farmers require better access to services, including credit and technology. Effective land reform requires a powerful national coalition of small farmers, small manufacturers, liberal church, the urban middle class and a reform-minded military.

Griffin, Keith

Land Concentration and Rural Poverty. The Macmillian Press LTD. 1981.

Griffin argues that the only way to quickly increase the well-being of the poor is through redistribution of landed wealth to create either small peasant farms (as in Taiwan) or communal tenure systems which encourage labor-intensive methods of cultivation. Alternative policies for reducing inequality--such as direct progressive taxation, intervention in commodity and factor markets and development and diffusion of new intermediate technologies--will not eradicate poverty, given the inegalitarian distribution of wealth and the existing power structure in poor countries.

Griffin presents case studies from North Africa, Latin America and Asia to substantiate the argument. He says the redistributive land reform in Algeria meant that large differences in industrial and agricultural productivity did not produce similar differences in rewards to workers, thus decreasing income inequality during the last decade.

In Morocco, the inequality of income and wealth increased and the standard of living for much of the peasantry decreased where land redistribution was not part of development strategy. Griffin also tries to prove that even in

land-rich Latin America, land concentration "distorts" relative factor prices such that inefficiency and inequality are inevitable. Case studies from Colombia, Guatemala and Ecuador show how large landowners are induced to adopt labor-extensive techniques of cultivation which reduce production and create less employment than other land ownership patterns. In Ecuador, Griffin says this lowers wages.

Griffin compares the development strategies in Turkey and Taiwan. Turkey's rapid industrialization required capital-intensive techniques of production and agriculture and animal husbandry were neglected. Taiwan's redistributive land reform encouraged labor-intensive techniques of production and diffused wealth through agriculture and industry. As a result, total per capita income is 20 percent higher in Taiwan than in Turkey, and the difference is increasing rapidly. A large proportion of the Turkish labor force now works outside the country. In Taiwan, the primary factors of production--land, labor, and capital--are fully and intensively employed.

Griffin's last chapter considers 12 Asian countries. In most of these nations, concentration of landed wealth has distorted factor markets and led to the unwarranted substitution of capital for labor in agriculture. Only Taiwan and South Korea which implemented redistributive land reforms and emphasized on labor-intensive technologies escaped this fate.

Kanel, Don

"Land Tenure Reform as a Policy Issue in the Modernization of Traditional Societies." Land Reform in Latin America. ed. Peter Dorner. 1971.

Land tenure in developing societies is not as easy to control as economic theory based upon advanced Western economies indicates. Tenancy in Western countries facilitates capital mobility and has little social and political significance while land tenure in developing countries is a major part of the social structure, the basis of social class divisions and determines access to economic opportunities.

Weak markets for land and labor and limited non-agricultural production in traditional societies means that one's ability to produce is directly related to land tenure arrangements. When land becomes more valuable, and fee simple ownership and hired labor are accepted, landlords can create a social order through their control over labor. The shedding of traditional obligations means that reciprocal bonds lose their power and meaning and are replaced by alliances between landlords and the state.

Kanel says there is an alternative scenario to this process if land ownership gives peasants fundamental security. The state plays an essential role in this process since changes in the exploitative transitional forms to the more viable "modern" forms require that the rural elite power be challenged through new political alliances and revised tenure arrangements.

King, Russell

Land Reform: A World Survey. Boulder: Westview Press. 1977.

King reviews the liberal economic theories and the historical and philosophical inspirations behind land reform and he evaluates the land reform experience in four major Third World regions during two decades.

King does not assume that there is a direct relationship between equity and efficiency, and between land reform and economic development but argues that large-scale enterprises should be preserved in some cases. Where the evidence is less clear, he recommends careful analysis before arriving at any scale-efficiency conclusions. Similarly, he says that the exact mechanisms linking land reform to development remain a mystery. Economic arguments are often less important than political forces, such as commitment of the elite to change and the sentiments and organization of the peasantry.

King chronicles the development of two opposing conceptions of land reform and rural development; the Soviet collective model and the U.S.-European small farmer/integrated approach. Neither model is easily exported to most Third World settings since both require expansion of the state, a concept which does not appeal to peasants. Sponsors of land reform often fail to provide adequate, sustained material support. Reform programs should be free of ideological rigidities and tailored to specific circumstances. Even though land reform may advance modernization, as liberal advocates hope, King argues that land reform can be the result, not the cause, of fairly advanced, modern societies.

King also cautions that land reform is never a panacea for overpopulation and land shortages. Unfavorable international terms of trade will still threaten the fiscal health of much of the Third World. He views with skepticism such alternatives to comprehensive land reform programs such as colonization programs, the Green Revolution and land tax increases because of their high costs, limited scope and effectiveness.

King examines several regions with distinct land ownership structures. The Latin American model, characterized by extreme concentration of ownership, agricultural stagnation and latifundio and minifundio, came under the most scrutiny during the days of the Alliance for Progress. King says results have been overwhelmingly disappointing because U.S. material and political support was insufficient and its commitment to comprehensive land reforms was shallow and all too frequently contradicted by its support of private property.

Legislation and colonization programs often substituted for real land reform while new state bureaucracies did little to oppose the established power of rural and urban elites. In Mexico, where the hacienda system was abolished and production increased, the powerful latifundia is reemerging in the north and small farms are neglected in the south. In Bolivia, advances have also been partly reversed due to political events and the increase in landlord power.

Land reform in Asia is characterized by either the communist revolutionary pattern (China) or legislative reformism (Taiwan, Japan, India). It is not yet possible to fully assess the outcome of land reform in China. Success in Japan and Taiwan is contrasted with reform in India which has benefited middle peasants to the detriment of the rural poor.

In Africa, customary tenure is seen to impede commercial development. King contrasts land reform in Kenya and Tanzania.

King finishes by examining how large estates, widespread tenancy, communal grazing, the Islamic legal code, state distribution of land, church trust land and the emphasis on costly irrigation systems has affected land reform in Egypt, Syria, Iraq and Iran.

Montgomery, John D.

"Allocation of Authority in Land Reform Programs: A Comparative Study of Administrative Processes and Outputs." Administrative Science Quarterly. March 1972.

Montgomery says that the administrative process "emerges as a distinct and significant independent factor" in land reform.

Land reform involves at least four administrative processes: 1) initiating changes in ownership of tenancy rights, 2) issuing land titles and enforcing contracts, 3) transferring funds to landlords as compensation and collecting rents or payments from tenants and new purchasers, and 4) adjudicating disputes over boundaries, inheritances and rights.

These processes may be accomplished by a centralized national bureaucracy, in decentralized new or existing agencies, or by transferring some or all of these functions to local authorities (devolvement). Montgomery says the method selected is not determined solely by political ideology.

He finds that "with devolvement, land reform is more likely to increase peasant income than technical aid and credit institutions in combination." Furthermore, "in those countries where substantial agrarian reform (land redistribution plus technical assistance and credit) took place, peasant income increased in only one of six countries that used centralized means of conducting land reform, and in only two of the five decentralized cases, but in all of the five devolved cases."

Among 12 conservative regimes studied, "three used a centralized pattern of administration and achieved predictably poor results; four decentralized the operation, with only marginal benefits occurring to the peasants; while five were able to devolve . . . and produce favorable results for the peasants. Of the 11 radical or revolutionary regimes, "five used the central bureaucracy with poor results, one decentralized and conferred noticeable peasant benefits . . . five devolved, and achieved good results."

In sum, "the means employed in land reform affect outcomes more profoundly than the reasons for which it is undertaken." Given adequate time, "programs of devolved land reform show a better record" in increasing the incomes of small farmers.

Reed, Ed

"Introducing Group Farming in Less Developed Countries." Chapter 16, Cooperative and Commune. Peter Dörner ed. Madison: University of Wisconsin Press, 1977.

Governments commonly introduce group farms to increase labor absorption by agriculture, increase production and political control and provide services more efficiently. The economy is often mixed and struggling and lacks a predominant political orientation or ideology. Development strategies are uneven, ad hoc and short-term.

Group farms may be introduced on estates expropriated for workers, newly opened lands, communal lands cultivated privately (Africa) and consolidated private holdings. Reed analyzes the significant problems with group farming. Implementation is difficult if the nation lacks effective central management but has extensive and effective administrative infrastructure. It is usually not difficult to select crops and locate a strong market if group farms produce export crops, but it may be difficult to mobilize farmers.

Prevailing traditional ideologies are seldom of much use, though they have been some assistance in China and Tanzania. The state must formulate and instill new norms for participation and order. This is easier to accomplish on large estates with established resident workers than on consolidated private holdings and in areas marginally suited to agriculture.

The state must balance participation with bureaucratic control. Members may think their interests conflict with those of the state. Conflicts may also occur between private and public farms, the landless and the landed, and state markets and private markets.

Group farms require efficient planning agencies, carefully planned price and tax systems and access to credit. However, the group farm must not become dependent on the state. Peasants often require technical help in administrative matters. However, such help should not erode the internal autonomy of the group.

Warriner, Doreen

Land Reform in Principle and Practice. London: Oxford University Press, 1969.

Warriner says the motivations for reform include anti-feudalism, nationalism and equality. She notes that the quest for greater equality through land reform threatens the status quo and always involves some political risk. Political change may stop the process.

One outlines the steps involved in land reform. In the initial phase, land must be expropriated and exemptions and form of compensation determined. Then land must be distributed (defining the terms of ownership, categories of farms and size of holdings is a process often subject to delay and protracted uncertainty) and services provided (social services, credit, marketing). Enforcement in constitutional political systems can be affected by organized opposition and may lead to chaos where change has been promoted by revolutions.

It is often not easy to determine how land reform affects production. Redistribution alone does not always provide incentives to increase production. Warriner notes that small family farming, combined with technological change, the opening of massive lands and extensive assistance generated major agricultural advances in America and Europe. In developing countries, however, there is less unsettled land, greater reliance on managed water and fertilizer inputs, unstable markets and high population growth rates. These factors mean that sophisticated planning and considerable capital investment are required in addition to land redistribution.

The optimum size for landholdings depends on demographic factors, land type, method of farming, technology and capital inputs. Even though an existing agrarian structure inhibits production, it is difficult to determine which system will yield better results and whether state assistance and affordable levels of capital investment will be sufficient.

The effect of land reforms on production depends on administrative methods such as speed of reform and incentives. Structural factors include ownership patterns and farming systems. The social attitudes of beneficiaries are also important. It makes a difference whether beneficiaries have been laborer tenants, sharecroppers or peasant producers.

Warriner says reform is likely to be successful if it is implemented quickly, where landholdings are adequate and where peasant producers have a positive orientation to change (e.g., Japan, Italy, Egypt). Success is least likely where reform is slow, landholdings are too small to be economical and beneficiaries are alienated from the state and their work (e.g., Mexico, Bolivia, Iraq).

Warriner says there is no apparent connection between the degree of social and economic equality achieved by land reform and the rate of economic growth. Land reform alone is not sufficient for development.

The obstacles to reform include high costs which deplete capital available to invest in agriculture. Revolutionary reform may disrupt production. Successful programs are tailored to national circumstances and are not simply copied from either the Western integral-reform model or the large-scale Soviet model. Reform must be based on principles and firm political commitments.

AFRICA

Dohannan, Paul

"Land, 'Tenure' and 'Land Tenure'," in African Agrarian Systems, ed. Daniel Biebuyck, Oxford University Press, 1963. (LTC Reprint no. 105.)

In African societies, the meanings of the concepts "land" and "tenure" differ radically from Western usages. The most important aspects of land occupancy in black Africa are relationships among men, not of men to the land, as the English terms imply. A brief examination of tenure systems among the Tiv, Plateau Tonga, and Kikuyu leads to the conclusion that Africans are moving toward the Western concept of bounded parcels of land; that new forms of relationships between men and land, such as individual ownership of land, are evolving; and that "social groups which in the past had merely a spatial dimension are now being turned into territorial groups, because they are assumed by European-dominated legal systems to be 'juridical persons'."

Bruce, John W. and Peter P. Derner

Agricultural Land Tenure in Zambia: Perspectives, Problems and Opportunities, Madison: Land Tenure Center Research Paper No. 76, 1982.

The authors examine issues concerning both State Land and Reserve and Trust Lands. They say that conversion of all former Crown Land from freehold and leases of various terms to a uniform 99-year State Land lease system did not reduce agricultural production and attribute the loss of white farming expertise following independence to price and profit expatriation policies.

They note that Zambia's State Land policy (only improvements, not land, have value) and the nominal rental values charged by the State undervalued land as a factor of production and encouraged extensive use (e.g., good farm land on the outskirts of Lusaka is used for cattle grazing), thus contributing to the decline in Zambia's food production.

The authors suggest that giving relatively few people access to cheap leases of state land is not equitable and invites corruption. They propose graduated rents which recognize differences in land values.

The authors recommend that leasehold tenure be gradually introduced for Reserve and Trust Lands under traditional tenure. They also recommend a more effective system of administering Reserve and Trust Lands, perhaps a modification of Botswana's system of Land Boards. The reform of customary rules concerning inheritance of land to provide for limited freedom of testation is also recommended.

Cohen, John M.

"Land Tenure and Rural Development in Africa." Agricultural Development in Africa: Issues of Public Policy. Eds. Robert H. Bates and Michael F. Lofchie. New York: Praeger.

Cohen seeks to promote research and debate on "what combination of tenure rules and institutions is most conducive to reaching smallholder-based agricultural development goals." Cohen summarizes the major criticisms of corporate tenures, most of which find that corporate systems lack security, access and flexibility as well as blocking entrepreneurial behavior, seen as essential to agricultural take-off. (Cohen defines corporate tenure as "a system whereby land is held collectively in family kinship, clan, or tribal units and allocated without right of disposition to households.")

"A clear assumption is . . . that only private tenures have the ability to adjust quickly to the rapid social and economic change created by a modernizing agriculture." Since ultimate land rights lie with the community, critics contend that a corporate system does not provide farmers with the security needed to improve farmland. Costly and time-consuming litigation, land fragmentation and the absence of land markets are also said to encourage land immobility.

However, Cohen says corporate tenures have advantages which are often overlooked. Minor reforms might give some corporate systems the flexibility to allow expansion of commercial agriculture. Credit systems and improvements in land use can be promoted by strategies other than complete transformation to freehold. Cohen suggests that critics of traditional corporate systems assume that land speculation, profiteering, land concentration and exploitative landlord-tenant relations will be controlled by the same legislation that frees land from corporate rules. Proponents of a freehold systems contend that corporate tenure prevents emergence of a market economy that can drive the national economy.

Cohen says "individualization," or a reduction of group interests in land, is proceeding in Africa without reform legislation. Farmers and land-holders manage to circumvent traditional restrictions against sale of land which indicates that corporate tenures are more flexible than generally thought. While individualization is most often associated with increasing commercial production, the trend is also associated with rapid population growth coupled with limited off-farm employment opportunities, a shift to permanent cultivation practices as the amount of surplus land decreases, the introduction of freehold tenures in specific (settler) sectors by the colonial administration, and the increasing "importance of certain essentially freehold characteristics previously submerged in corporate tenure patterns."

Cohen argues that "corporate tenures are not as limiting on the emergence of stronger individual rights in land as Westerners often imagine, nor is increased participation in the market economy as great a shock for corporate tenure farmers as is generally supposed." Cohen's argues that corporate tenures have accommodated changing circumstances. However, *de facto* tenure changes have increased inequities within the rural population and often displaced the poorer segments of the farming community.

Instead of emphasizing legislative action to promote private rights in land, reform planning might develop means to protect smallholder interests and clarify the legal bases of land rights. Cohen documents diverse tenure problems and policy approaches in Egypt, Ethiopia, and Tanzania.

He concludes that "priority should be given to research problems relating to land tenure reform options facing national leaders and characteristics of existing tenure institutions that push agricultural strategies in unexpected and possibly undesirable ways."

Hoben, Allan

Land Tenure Among the Amhara of Ethiopia: The Dynamics of Cognatic Descent. University of Chicago. 1973.

Hoben's monograph on land tenure in the village of Dega Damot focuses on the ambilineal system of descent and how it's related to the rist land tenure system of the region. Under the rist system, those identified with a corporate descent group may obtain land. The rist system does not allow elites to control land nor does it permit the poor to own land.

Hoben does not recommend interfering with the rist system. The rist system changes the structure of the household and thus increases social mobility for peasants. ". . . Rist adjusts the ecological realities of an agrarian society to the political realities of competitive and fluid feudal polity and does this without producing a large class of landless and alienated peasants."

Gult privilege (a kind of fiefdom or estate) can be bestowed only on the nobility and upper echelons the clergy. The ordinary peasant can own rist but not gult. Gult confers political, economic and judicial rights over holdings. Owners appoint administrators, impose taxes and appoint judges.

Shapera, Issac

Native Land Tenure in the Bechuanaland Protectorate, Lovedale, South Africa: The Lovedale Press, 1943.

A detailed description of customary land tenure systems and systems of land use in Botswana at the time of writing. The book includes sections on rights to residential land, the migration of settlements, rights to pastoral land, as well as hunting ad water rights.

Verhelst, Thierry G.

"Customary Land Tenure as a Constraint on Agricultural Development."  
Cultures et Development 2. p. 627-656. 1969/70.

Verhelst says many analysts fail to distinguish between constraints associated with land use and constraints associated with land law. He believes that many of the problems attributed to land law are instead due to factors such as land use, population pressure, lack of skills, inadequate incentives, etc.

Furthermore, problems directly attributable to customary tenure (i.e., insecurity of tenure due to excessive litigation or unclear titles, sub-division, etc.) do not require a wholesale reform in law. Marginal adjustments can often enhance security (registration of customary rights in land or revision of succession rules). Verhelst warns that prevailing economic, ecological, demographic and cultural conditions must be considered lest "legal reforms are bound to lead to discrepancies between law and fact . . . undermining the authority of law and jeopardizing its use as a tool of development where and when such use is appropriate."

Verhelst summarizes the position of those who advocate incremental adjustments to the existing system of traditional African tenure:

The critics of customary land law often fail to consider the good features of existing land laws and how to build on them, while eliminating those features which are definitely inimical to the increase of yields and the protection of natural resources. Not only is it clear that simply changing land law cannot increase productivity, it is equally well established that productivity is not linked to any particular land tenure system. Outside imposition of individual freehold title or large-scale collective exploitations, often lauded as the solution to solve Africa's agricultural problems, have not proven to be consistently more successful than customary law arrangements.

LATIN AMERICA

Chonchol, Jacques

El Desarrollo de America Latina y la Reforma Agraria, Santiago de Chile, Editorial del Pacifico, 1964.

An important treatise by Chonchol, dealing with a broad range of issues related to agrarian reform and development, including employment, intensification of agricultural production, income distribution, insufficient industrial growth, markets, exchange policy, and education.

de Janvry, Alain

The Agrarian Question and Reformism in Latin America. Baltimore and London. Johns Hopkins University Press. 1982.

The agrarian crisis in Latin America is manifested by agricultural stagnation in key areas and the increasing impoverishment of the rural masses. Agricultural output per capita is not noticeably higher than it was before World War II, while dependency on grain imports has increased dramatically. Production of "wage foods" on small farms has increased very slowly, whereas production of export crops and products consumed by upper income groups, usually produced on large commercial farms, has tended to increase more rapidly.

De Janvry says this crisis is related to the transformation of the larger economy. Agricultural development during the postwar period is tied to the evolution of Latin American market economies which are in turn linked to the economies in developed countries.

De Janvry traces the decay of the more traditional plantation/hacienda system and constructs a complex typology of contemporary farm enterprises before discussing the economic and political processes involved in the transition to capitalist agriculture. One path is along the so-called "junkier road" when former semifeudal estates are converted into large commercial enterprises with large amounts of wage labor. Other avenues (such as the "farmer road" of petty-bourgeois farmers, the "merchant road" of middle class urban investment in agricultural property, or the increasingly used "contract farmer road" of multinational lease arrangements with local land owners) have also played a significant--though less important--role in this transformation.

As development occurs, the rural labor force becomes more like wage workers than farmers. Thus, the availability of employment and the wage rate are more important for most peasants than output from their small plots.

In most Latin American countries, the agrarian transformation has not broken the power of the landowning classes. The junkier pattern has perpetuated the influence of landed property in government. The most important alliance is that of the junkier landed elites with the owners of major industries in which the junkiers provide the agricultural exports and industrial raw materials necessary to sustain industrialization based on import substitution. The urban industrialists, in turn, protect the profits of the junkiers (by restricting imports of competing products, imposing few taxes, investing heavily in technical change, etc.), ensure that surplus rural labor helps keep wages low and impose price and other controls which depress the prices of foods produced on peasant farms.

The subsistence sector thus plays a key role in the economic system. Indeed, de Janvry claims that functional dualism between the modern and traditional sectors makes it possible to pay less than subsistence wages--wages equal to the difference between a subsistence income and net

output on a peasant holding. These low wages increase the profitability of farming while impoverishing the majority of the rural population. Moreover, poverty and inequality are accentuated as technological innovations are concentrated in the modern sector while cheap foods (especially wheat) are imported and price ceilings are imposed on locally produced staples. In fact, de Janvry says that unfavorable terms of trade explain why food production in Latin America has stagnated.

Policies pursued by the state are political measures which stimulate the transition to agriculture and integrate it into the national and international market economy. Land reform thus stabilizes social relationships, preferably while developing the forces of production. The main impact of land reform, however, has been on the non-reformed sector. Using case study material from Mexico, Peru and Colombia, de Janvry shows that land reforms in Latin America have had only a small effect in generating additional employment and raising incomes of the poor, and a negligible impact on the domestic market for manufactured goods.

De Janvry contends that most land incorporated into the reformed sector has been of low quality, is geographically remote and lacks infrastructure. As a result, output has increased little in the reformed sector. In the non-reformed sector, however, production often has increased, largely because the threat of expropriation has induced large landowners to use their land more intensively and to invest more heavily in agricultural activities. The reforms, then, have destroyed the feudal remnants in the countryside, fostered the development of commercial farming on large holdings, extended functional dualism (most of the beneficiaries are tied to small plots and forced to supplement their income by working for low wages in the non-reformed sector), and created a conservative agrarian group which acts as a buffer between the landless and near-landless peasantry and the junkers.

In de Janvry's opinion, the era of land reforms in Latin America has or soon will come to an end. Future reforms must be directed at commercial farming enterprises. This is unlikely to occur as long as the alliance of junkers and urban industrialists persists. Instead, managed agrarian dualism will concentrate capital in the commercial sector while the agrarian middle classes are helped marginally through rural development projects and the provision of some public amenities. The majority of the rural population, which is more proletarian than producer, will remain largely unaffected by reform or development.

Dorner, Peter (editor)

Land Reform in Latin America: Issues and Cases, Land Economics Monograph Series, No. 3, Madison, published by Land Economics for the Land Tenure Center, University of Wisconsin, 1971.

A collection of important articles by specialists connected with the LTC on topics related to land reform. The issues considered are primarily contemporary and policy oriented (the economics of land reform, employment, agrarian reform legislation, peasant organizations, colonization, land tenure security, private parcelization). The cases studied are Chile, Bolivia, and Colombia. Articles by the following authors appear: Marion Brown, Ronald Clark, Peter Dorner, Herman Felstehausen, Don Kanel, William Thiesenhusen, and Joseph Thome. A general conclusion is that: "... without major land reforms and the redistribution of economic and political power inherent in such processes, it is difficult to achieve the necessary modification in related institutions and the basic goal of development--a reduction in mass poverty and a more equitable distribution of increased income-earning opportunities."

Eckstein, Shlomo

Comparative Experiences of Land Reform in Latin America. Washington: World Bank. 1976.

Eckstein examines the outcome of six massive land reforms in Latin America (Mexico, Cuba, Venezuela, Peru, Chile, Bolivia) which occurred during the past 40 years.

Most land reforms in Latin America have been piecemeal and incomplete. While most of the large traditional estates have been eliminated, large disparities in land holding still exist. With the exception of Peru, holdings exempted from expropriation were generous and reforms have created a sharply dualistic agrarian structure, in which the reformed sector coexists with a prosperous commercial, private landholding sector. In most cases, land redistribution was not accompanied or followed up by other developmental measures aimed at consolidating the new reformed sector. Nevertheless, in a number of countries, distributive reforms, which were initiated more by peasant unrest than through government planning, have had broadly favorable effects on income distribution, social mobility and political stability. With the exception of some disruptions in the early transitional period, total output was either not affected, or indirectly stimulated.

Eckstein identifies two divergent historical patterns of land reform in Latin America. In the revolutionary or radical model (Mexico, Bolivia)\*, a feudal form of agriculture, based upon hacienda, predominates. Reform generally begins in earnest after frustrating failures, and eventually occurs during the tumult of revolution. A revolutionary elite introduces radical changes, abolishes the feudal elite, consolidates political support from the exploited peasantry and converts haciendas to smallholder plots. Change is swift and broad in scope. Rapid gains in equity further strengthen the political bond between the revolutionary elite and the peasantry. Difficulties eventually become apparent as there is inadequate state assistance for further development, the converted sectors stagnate and a new category of large modern landlords emerges who can derive extensive support from the state.

The second model--the reformist pattern--is far more common, far more subject to conscious manipulation, and in several respects, far more complex and problematic than the radical model. The nation is usually at a more advanced stage of economic development as haciendas coexist with new commercial mixed farms and export-oriented plantations, often foreign owned. A reform-minded elite initiates reform in order to correct gross inequities in land ownership and abolish semi-feudal labor systems. Legislation and gradual change is intended to be peaceful and negotiated. Far too often, however, key legislation is ambiguous, complex and difficult to implement.

Eckstein says many landlords employ legal maneuvers to avoid giving up their best land; what little land is redistributed is of poor quality. Permitting the continued existence of the landed interests triggers new political struggles among rural and urban social groups.

Each type of land ownership requires distinctly different policies. Eckstein recommends an eclectic and cautious approach. Existing production systems should be taken over and preserved by the state while it introduces experimental systems. Large amounts of capital will probably be required, especially when these mixed farms compete for resources in unreformed areas of the country.

\*Eckstein excludes Cuba in his discussion of the revolutionary model.

Feder, Ernest

The Rape of the Peasantry: Latin America's Landholding System, Garden City, NJ: Anchor Books, 1971.

An important book on latifundismo and its correlates in Latin America--Underutilization of land, unemployment, and poverty. Draws heavily on results of the CIDA studies and on the author's extensive experience in Latin America. Criticizes technocratic approaches to development problems and emphasizes the need for major structural reforms. Part 3 (pp. 171-253) deals specifically with land reforms in the 1960s.

## ASIA AND THE NEAR EAST

Gold, Martin E.

Law and Social Change: A Study of Land Reform in Sri Lanka. Nellen Publishing Company. New York. 1977.

One group of laws enacted from the 1950s into the 1970s dealt mainly with tenant-related issues and a second group, enacted in 1972 and 1975, addressed issues of land ownership. The first measures: 1) controlled land subdivision, 2) prohibited tenant evictions and provided security of tenure, 3) restricted the amount of rent, and 4) established selected cultivation committees with broad administrative and regulatory powers at the village level.

The second set of measures contained two major provisions which allowed: 1) acquisition of land owned by individuals and companies in excess of established ceilings; and 2) distribution of land to maximize productivity in accordance with "socialist" principles.

The provisions which controlled subdivision and prohibited tenant evictions have been widely circumvented, though the number of evictions has slowed and restoration has become easier. The rent restriction provisions have not been any more effective. The cultivation committees are dominated by prominent landed families and have not been able to transform the power structure in the village, nor significantly alter the irrigation and cultivation systems. The committees have helped educate cultivators, implement new techniques and ideas, settle disputes, and given cultivators more input in decision making.

Administration and enforcement of these programs have been expensive, in part due to the complexity of the measures. The second group of reforms avoided strict enforcement mechanisms and were implemented rather quickly

Gold stresses that drafting committees should include experts in sociology, anthropology and law to avoid errors which result from inadequate understanding of the land tenure system and village life in general. Provisions or terms from other countries must often be adapted. A new law written in one language may be poorly understood in a country with diverse languages.

Gold also notes that implementation of new legislation requires considerable administrative resources. New judicial organizations may be needed to resolve land disputes and overcome the conservatism of existing organizations. Inability to implement legislation at the village level and the influence of the landed gentry pose severe problems.

Jannuzi, F. Tomasson and James T. Peach

The Agrarian Structure of Bangladesh: An Impediment to Development. Westview Press. Boulder, Colorado. 1981.

More than 35 percent of all farm households in Bangladesh are either tenant or owner-tenant households which cultivate more than 22 percent of the land (excluding homesteads). The average size of tenant holdings is generally less than 1 acre. The most common form of tenancy is sharecropping. Some sharecroppers are required to make cash payments in addition to giving landlords half the crop or pay more than half the cost of producing the crop. Cash-only and oral agreements are common. Landowners generally do not provide agricultural inputs and tenants are changed frequently.

Under these conditions, tenants have very little incentive to invest in new agricultural inputs and modern farming techniques. Few sharecroppers and

small farmers are able to take advantage of government programs. The authors argue that reliance on a rural development strategy rooted in technology has increased inequality and that a land reform is essential to increase agricultural production and reduce poverty.

Proposed land reforms should link land ownership with work and the ability to reap the reward which result from taking risks.

This would mean that owner-cultivators are those who: a) reside on their lands and adjoining areas, b) invest personally in the agricultural production process and c) perform manual labor on their land. It would also require legal recognition of the land rights of peasant cultivators who now lack security of tenure.

Stavis, Benedict

"Rural Institutions in China," in *The Chinese Agricultural Economy*, Randolph Barker, Radha Sinha and Beth Rose (eds.), Cornell University, 1982.

Stavis discusses how the basic institutions of the Chinese countryside, the family and village, functioned before and after the revolution, and emphasizes the effects of land reform and the establishment of communes.

About 4 percent of the population lost land while 60 percent gained land due to reform and 43 percent of the cultivated land area changed hands. Since a crucial step in "building new rural institutions was the destruction of old ones," village meetings were held "to determine people's economic class and to denounce landlords." In addition to losing their land, at least one-half to one million landlords lost their lives and another two million were imprisoned.

Clan leaders "lost all financial power when lineage lands were signed and redistributed to peasants." Lineage temples were used as administration buildings. While lineage "as a set of family relations" remained, its political and economic power was ended. Since women were also guaranteed the right to free, self-selected marriage and divorce, the land reform in which "women and men received equal shares" made the period a "watershed for the woman's role in the village."

The land reform had conservative features as it was "directed primarily at the small number of absentee landlords and not at the large number of rich peasants who lived in the villages and rented out small pieces of land." Apparently, the Chinese were "well informed about the human death toll, animal slaughter and general agricultural depression" that occurred in the Soviet Union and "tried to learn from Soviet mistakes."

With land sale, labor hire and money lending prohibited and land still privately owned, efficiency in production was to be achieved through cooperatives. First came the Mutual Aid Team (MAT), a voluntary, though much encouraged, association of small groups of neighboring families who pooled their labor and purchased draft animals and tools together. By 1954 there were 10 million MATs involving 68 million households.

In 1955, the communist leadership decided to merge the MATs into Agricultural Producers Cooperatives (APC) with an average size of 27 families. Again, participation was voluntary as some "went it alone," and title to the original parcel was maintained. Members could withdraw though "social pressures made this difficult." Members were remunerated for capital contributions (land, animals and tools) and labor. Less than 50 percent of the APC's profit was distributed as dividend from capital shares, with the rest distributed according to labor. A point system rewarded the difficult labor or unpleasant tasks.

Higher Level APC (HAPC) were formed in 1956 which were much larger and no longer acknowledged private ownership of land. All profits were distributed according to work points. These were then abruptly amalgamated into people's communes averaging 4,600 families each. Previous organizational forms

remained but were incorporated into the new system, e.g., HAPCs became brigades, while APCs or MATs became work teams. At this point, the commune became "a unit of both local government administration and economic cooperation." According to Stavis, "During this period (1958-60) excessive commune size, military labor allocation, poor incentives and abolishment of the private sector combined with an inappropriate technology policy (e.g., backyard iron smelting) for disastrous results." Commune size was reduced to coincide with the traditional market village. Property ownership was re-established and markets were reopened.

Currently, "new policies downplay the role of the commune level institution" and there is increased reliance on price, tax and market incentives. Local specialization instead of self-sufficiency is encouraged, and the private sector is expanding. The collective system itself may be dissolving as individual households or small groups of households are assigned land and then contract with the state to meet production and marketing quotas.

Stavis says rural institutions have "greatly equalized economic and social status," assured "personal and family security (no more famines)" and provided rural access to social services, though "incentives for good management and entrepreneurship have been weak" and popular participation has been constrained.

Verdier, Jean M.; Desanti, Pierre; et Karila, Juliana

Structures fonciers et Developpement Rural au Maghreb, Travaux et Recherches de la faculte de Droit et des Sciences Economiques de Paris, serie Afrique, 4, Paris: Presses Universitaires de France, 1969.

A thorough study of the evolution of postindependence land legislation in the three north African countries of the Maghreb--Algeria, Morocco, and Tunisia. While the three countries share similar goals with respect to social and economic development and have similar problems, such as conflicts between peasant aspirations and the need to promote economic development, quite different juridical measures have been taken to meet these goals and problems. For each of the three nations the authors cite legal texts on decolonization, land distribution, public domain, and refer to various rural development projects.

Warriner, Doreen

Land Reform and Development in the Middle East: A Study of Egypt, Syria and Iraq, Second edition, London: Oxford University Press, 1962.

Regarding agrarian reform as "a point of intersection between economic development and social change." Warriner places her discussion within this broad context. Avoids a comprehensive view of land reform, substituting a more restricted one confined to redistribution, so as not to cloud or dilute this primary issue.

Wong, John (ed.)

Group Farming in Asia, Singapore University Press Pte Ltd., University of Singapore, 1979.

This book presents the papers given at the Regional Research and Training Program of the Agricultural Development Council Conference in Singapore, August, 1977. Cooperative group farming efforts supplement rather than discourage or replace individual family farms which often confront structural obstacles. The initiative and funding for group farms may come from government or private sources or from the involved farmers themselves. Even though indigenous rural mutual aid and cooperative practices have a strong tradition throughout Asia, Wong says that a tradition of rural collectivism is neither necessary nor sufficient for a successful cooperative effort adapted to the current developmental needs of agriculture.

Malaysia, for example, has a history of mutual self-help projects in rural areas. However, two government-sponsored group farming projects have met with only mixed success due to a lack of good management, the large scale of operation and the paternalistic role of the Malaysian government.

In Taiwan, Wong indicates that joint farming has worked well in smallholdings and for part-time farmers, but cooperative techniques cannot be employed throughout the country. Joint farming ventures must consider the type of farmer in the organization, the socioeconomic status of farm families, the educational level of the participants and their geographical location. When faced nonfarm employment is the alternative, joint farming can solve agricultural production problems without destroying family farms which are the foundation of Taiwan's economic and social structure.

Wong says group farming has been more successful in East Asia (Japan, South Korea and Taiwan) where smallholders have responded positively to these efforts. In Southeast Asia, large-scale government land-settlement programs have been more successful than group farms because smallholders have traditionally been less disposed to communal efforts. Despite the history of cooperative movements in South Asia, group farming has not been particularly successful although new cooperative policies may help alleviate the region's poverty and unemployment.

According to Wong, "the major challenge to the promoter of the group farming rural development strategy in non-socialist Asia is how to expand the scope and level of group farming operations despite existing nonconductive institutional climate."

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