

Resource Tenure

Readings and Resources for
Community-Based Natural
Resource Management
Researchers

Volume 9

Compiled by Peter Vandergeest
and Tony Rogge

for
the Community-Based Natural Resource
Management Program Initiative, IDRC

December, 1999

For further information about this document, please contact IDRC
at the following address:

CBNRM, Programs Branch, IDRC, P.O. Box 8500, Ottawa, Ontario,
Canada K1G 3H9

ARCHIV

577.4:301.18:

L38

Table of Contents

- A. The Community-Based Natural Resource Management (CBNRM) Social Science Resource Kit**
- B. Readings on Resource Tenure and CBNRM**
- C. Bibliography**
- D. Obtaining Documents Listed in the Bibliography**
- E. Websites and Electronic Information**

A. The CBNRM Social Science Resource Kit

What is the CBNRM Social Science Resource Kit? This kit is a reference tool to assist researchers funded through IDRC's Community Based Natural Resource Management (CBNRM) program in Asia to apply concepts, analytical approaches and research methods from the social sciences in their research.

What is the Format of the Kit? The kit is being delivered as a set of **resource books**, each dealing with a different key issue area related to CBNRM research. The topics/issue areas covered include: Gender; Community-Based Natural Resource Management; Participatory Research; Indigenous Knowledge; Institutional Analysis; Common Property; Stakeholder Analysis; Participatory Monitoring and Evaluation; and Resource Tenure. Depending on feedback received from these materials, other topics or issues may be considered for coverage in future.

What is in the Resource Books? The resource books contain photocopies of selected readings excerpted from books, academic journals, field reports and training manuals. Depending on the subject, the readings include conceptual and methodological issues, research tools, and illustrative case studies. Each source book also includes an annotated bibliography, a list of references, and information on electronic (internet) resources. Instructions on how to use the Centre's literature search and document delivery services (free to IDRC-funded institutions) are also provided.

Readers will find that some of the material in each resource book is contradictory. The intent of the Kit is to expose researchers to a range of academic perspectives, rather than to choose only one view. This means that readers of this material will have to think about the different arguments presented and choose for themselves an interpretation of these concepts and methods which is sensible for their own research project. Readers should also note that the views expressed in the readings are those of the author(s) and do not necessarily represent those of IDRC.

Why Has the Resource Kit Been Prepared? The impetus for developing the kit stems from specific requests from IDRC research recipients for tools and resources to assist them in doing research for community-based natural resource management. For many of these researchers CBNRM is a new concept requiring analytical tools and research methods that are quite different to those they had received through formal or other training. Researchers wanting to learn these new concepts and methods have been constrained by a lack of access to well-stocked libraries, relevant databases and internet sites.

The kit is also part of an effort by the CBNRM Program at IDRC to promote approaches to research that are participatory, action-oriented, multidisciplinary and grounded in local experience and local knowledge.

Who Should Use the Kit? If your research deals with Community-Based Natural Resource Management and is sponsored by IDRC, you should refer to the information in each volume to help you to undertake your research. IDRC-supported researchers will find that the concepts, tools and methods covered in these reference books will be used repeatedly in research reports, workshops, meetings, correspondence, and in evaluation of your work. You will also find it helpful to understand and apply these concepts if you submit future research proposals. The Kit will also be of wider interest and we hope that it can serve as a useful reference collection for researchers who otherwise would have difficulty getting access to this material.

How Were Readings Selected for the Resource Kit? The readings were selected from existing publications based on literature searches and consultations with academics and practitioners in the respective fields. From these sources the materials have been further selected for:

- ▶ readability/clarity of the writing
- ▶ suitability for an audience with limited English language skills
- ▶ suitability to the CBNRM project contexts
- ▶ emphasis on definition of terms and detailed explanation of concepts

IDRC-supported CBNRM researchers are working in over 11 countries in Asia representing a wide range of cultural and educational backgrounds. Many researchers do not read English as a first language and a majority have not had formal training in the Social Sciences. For these reasons an effort has been made to include materials that will be instructive and accessible both for newcomers to the topic and for those with a background in the subject area.

How Might the Resource Kit be Used? These resource books are only a starting point for researchers looking for information on a specific topic. The readings are meant to stimulate research questions and further inquiry. The research tools provided are intended as catalysts for adaptation and innovation of new site-specific tools, methods and analytical frameworks. The bibliographies will assist each project and researcher to pursue more targeted information beyond what is provided here.

Some specific actions you might take within your research team and/or institution to make more effective use of this material:

- ▶ identify specific topics which are most relevant to your research and assign responsibility to specific members of the team to review these materials. Take

turns briefing other team members on what you have learned from each Kit volume.

- ▶ questions? Ask external project advisors or IDRC program staff if you have questions arising from your review of this material.
- ▶ organize training sessions using these reference materials together with local resource persons, designated team members, or other experts.
- ▶ translate the best articles for broader circulation.
- ▶ request reference materials or literature searches from the IDRC library.
- ▶ read some of the books in the bibliography to deepen your knowledge and learn other cases and examples. Books and articles which you have read and which are relevant to your own research can be cited, if appropriate, in your research proposals or reports.
- ▶ inform IDRC of any changes to your projects that have come about as a result of this material.
- ▶ discuss the contents of the readings within your research team and identify what adaptations you could make for the conditions of your project.

B. Readings on Resource Tenure and CBNRM

This section includes thirteen photocopied readings covering conceptual and methodological approaches to researching and understanding resource tenure issues relating to community-based natural resource management. A brief introduction and summary of the readings is provided below, followed by the reference information for each reading. The readings themselves are numbered and marked with corresponding tabs for convenience.

I. Introduction

For the purpose of this reader, resource tenure is defined as all the ways by which people gain legitimate access to natural resources for the purpose of management, extraction, use, and disposal. Resource tenure thus covers much more than the formal property rights recognized by the government, like land titles or state forests. It also refers to the unwritten, informal practices through which rural people gain access to resources. An understanding of the informal as well as formal dimensions of resource tenure is a crucial starting point for interventions like community-based natural resource management (CBNRM) projects.

Resource tenure is complex and multidimensional. There are typically many state laws and policies, implemented by multiple state agencies, which are relevant to resource tenure. For example, Departments or Ministries of Land, Forestry, Fisheries, and Civil Administration are normally all involved in overlapping ways in resource tenure. Local, informal practices are even more complex, as they involve the accumulation of ways of doing things over many years.

The articles in this reader are selected so as to cover some of the most important dimensions of resource tenure in rural settings. One approach to thinking about this complexity is to pull apart each of the terms in the definition offered above. The notion of “resource,” for example, is not as simple as it might seem. A single item (a tree, field, stream) can be many different resources all at once. These different resources can be accessed by different people in different ways at different times of the year. The term “legitimacy” puts questions of power and culture at the centre of the way we go about understanding resource tenure. Power can be based in both control of material resources such as land or trees, and in the more subtle ability to shape legitimacy through stories or maps. Articles in this reader show that informal legitimacy is often claimed through the telling of stories, and that it is frequently contested. State agencies often draw legitimacy for their claims to forests and other resources from official maps.

A close look at the category “people” in studies of resource tenure gives a window into how gender, ethnic, clan, kin, or class relations are shaped in part through resource tenure practices. CBNRM projects are generally considered most suitable for people living in “upland” or forested areas, or coastal zones. The people who inhabit these zones are often ethnic minorities within the nation-state. Relations between the ethnic majorities whose world views shape the action of state agencies, and the ethnic minorities who inhabit environmentally-sensitive zones, are thus crucial to understanding resource tenure. A detailed examination of ethnicity in relation to resource tenure is beyond the scope of this reader, but its importance to resource tenure should not be underestimated.

Many of the photocopied readings that appear here use the term “property” rather than resource tenure. In most cases the words “resource tenure” can be easily substituted for “property.” The advantage of using “resource tenure” in this series of readings on CBNRM is that it focuses attention on natural resources. In addition, the term “resource tenure” allows us to avoid the confusion surrounding conflicting and often overly legalistic definitions of property. With a couple of exceptions, we have stayed away from readings on common property institutions, as there is already a reader in this series on that subject.

II. An Overview of the Readings

1. Concepts

The initial section introduces ways of conceptualizing resource tenure, and examples of how resource tenure research can be used to explore intra-community differences. In the first essay, Peter Vandergeest suggests that we think about property not only as rules and laws, but also as ordinary, everyday practices. This approach implies that research on resource tenure might usefully begin with observations of what people do, rather than questions about rules and laws. A focus on practice also gives us a window into the complexity of rural resource tenure, and helps us avoid the tendency to reduce all property relations into one of three pre-given categories--state, private and common property.

The second article, written by Diane Rocheleau and David Edmunds, can be read as a general guide for doing research on resource tenure. Although Rocheleau and Edmunds focus on gender and class, their approach could easily be extended to other forms of social difference such as ethnicity or age. This article is particularly important for its analysis of how access to different kinds of spaces can be gendered, and how this gendering can change over time. Although men frequently gain formal access to land in land titling programs, women often have informal access to other, “in-between”

spaces. Rocheleau and Edmunds argue that two dimensional maps representing land tenure are inadequate for representing the nested bundles of rights and management practices which make up resource tenure in rural areas. They suggest that researchers map every possible detail of informal as well as formal resource tenure, as a way of recognizing the more informal resource tenure practices important to women. This discussion anticipates the section on mapping (below), where authors like Peluso suggest alternative ways of addressing problems raised by efforts to map resource tenure.

Richard Schroeder and Krisnawati Suryanata's article is included because it demonstrates the usefulness of expanding resource tenure research beyond the study of land tenure. They show how agroforestry projects in Gambia and Java have produced intense struggles over access to resources because of how these projects intersect with local tree tenure practices. The particular form taken by these struggles varied: in Gambia, they were based on gender, while in Java they were based in class. In other words, it is not possible to predict what kinds of specific conflicts interventions like agro-forestry projects might produce without careful, contextual studies of class, gender, and other relations in specific ecological contexts.

Edella Schlager and Elinor Ostrom's article illustrates the usefulness of breaking down resource tenure into distinct bundles. They use the example of a lobster fishery in Maine (USA) to show that these bundles include rights of access, withdrawal, management, exclusion, and alienation. According to Schlager and Ostrom, these rights can be conceptualized in terms of "levels." Access is the most basic right, to which each of the others (withdrawal, management and so on) can be added one by one. For example, fishers cannot withdraw a resource without having access; they cannot manage the resource without access and withdrawal rights. We would add that resource rights do not always follow this kind of sequence. For example, we can imagine communities that obtain management rights with severe restrictions on withdrawal or use rights. It can also be useful to further break down these levels. For example, forest management rights can be broken down into rights to plant, weed, prune, cut, burn, and so on. Forest management plans may permit some of these practices--for example, planting--but not others--for example, burning. Villagers may be permitted to plant some species, but not others. Actual practice, of course, might deviate substantially from these rules.

An important implication of Schlager and Ostrom's argument is that communities can have many resource tenure rights without obtaining full ownership of the resource. This can be strategically useful for local communities and their supporters in the context of negotiations between state agencies claiming ownership of a resource, and communities whose claims do not necessarily extend to ownership and alienation.

Anita Kendrick's paper adds yet another dimension to our conceptualization of resource tenure. She draws on her research in a coastal village in Java to show that we should pay attention to how resources are distributed and redistributed after they are "withdrawn." In this case, the apparent lack of institutions regulating access to the fisheries does not mean that there is no resource tenure other than open access. Kendrick suggests that the villagers' difficulties in restricting access to local fishery resources may in fact explain the emergence of informal practices which redistribute the catch taken by larger operations, through what looks to outsiders like a free-for-all as the fish are transferred from boats to the shore.

2. Stories

Many of the papers in this reader show that access to resources is often contested. State agencies, large landowners, poor villagers, multinational corporations, men, women, or different ethnic groups may all make overlapping and competing claims on the same set of resources. Although coercion, open or hidden, plays a part in most cases of resource tenure conflict, groups involved in conflicts also try to convince other people that their claims to the resource are the most legitimate. Stories are central to the way that people make these arguments. Careful attention to the different stories told by the various groups in a resource tenure conflict will help researchers understand both the reasons for conflict, and possible ways of resolving conflict.

As Fortmann writes in the first article in this section, stories create and frame understandings, help to create moral communities, and validate current actions including claims on resources. The term "understanding" refers to the ways that stories create meanings which frame how people claim access to resources. "Moral communities" refers to the ways that groups of people create common ideas of what is right and wrong, and thus, what is legitimate access and what is theft.

Fortmann draws on research in Zimbabwe to describe how villagers on one hand, and large landowning farmers on the other, tell stories in order to make competing claims on the same resources. Villagers tell stories that claim that their access to these resources was recognized in the past, and that argue that they have a right to resources in compensation for their suffering during the liberation war. Farmers tell stories that portray themselves as exemplary ecological stewards, and villagers as ecological destroyers. These same strategies for legitimizing resource access (appeal to the past, to participation in revolutionary struggles, or to ecological stewardship) can be found in Asia and many other places around the world.

The article by Ernst is more academic than Fortmann's, but we have included it because it shows how changes in resource tenure also remake ethnicity and other

forms of identity. Readers might want to skip the first section of this paper, which is largely a review of anthropological theories. The important sections are those which show how the Onabasulu are retelling traditional stories in order to claim valuable resources which might be mined by multinational corporations. The government recognizes clans as a fundamental social unit which can claim income from the exploitation of natural resources mined by multinationals. But clans can claim resources and income only if clans are clearly identified and have clear boundaries. Thus local stories are being re-told in ways which reduce the ambiguity and fluidity of clan membership. The result is a process that Ernst calls "entification"--turning clans into entities through storytelling.

Legal pluralism, or the recognition of customary laws, is sometimes promoted as a way of resolving differences between local practice and national law. Amity Doolittle's commentary suggests that caution is required with respect to legal pluralism. She draws on research on the history of a native reserve in Sabah (Malaysia) to show how a policy of legal pluralism became a way of codifying unequal power relations during the colonial period. "Native law" provided privileges to the ruling elite such as participation in lucrative land markets, while barring natives from enjoying these privileges. The government told stories which legitimized restrictions on native resource rights as necessary for protecting natives from foreign land sharks. Stories told by residents about the creation of the reserve present a rather different picture, but the main point is that residents now feel that the reserve is a burden. It isolates them from the benefits of private property, while not providing adequate institutions for regulating resource use.

The final article in this section, by Pendleton, shows that local challenges to the legitimacy of state claims on forest resources are not limited to the third world. Pendleton draws on research in the Pacific Northwest of the United States to describe how many community members "steal" trees from government land. He argues that far from simply being a crime, tree theft is fundamental to how rural people create a sense of community, confer status, establish trust, and exclude unwanted members from the community. The local Forest Service informally condones these local practices by treating only the most illegitimate form of tree theft as a crime. This kind of accommodation between community members whose claims contradict national laws, and local forestry officials who informally condone these local claims, can be found in state forests around the world.

3. Maps

When governments, NGOs, universities, or other agencies from outside of rural communities get involved in recording rural resource tenure, they need ways of writing down what they find so that it can be remembered and communicated to others who

may not have done the original research. Almost always, this documentation of resource tenure involves mapping complex resource tenure into two-dimensional maps. The final set of readings focuses on some of the ways that resource tenure has been mapped, and on issues that emerge when CBNRM projects include a community mapping component.

The first article, by Peter Vandergeest, draws on research in Thailand to describe the process of “territorialization” of state rule. Like governments elsewhere, the Thai state has gradually claimed a monopoly on the administration of resource tenure. The key written text for modern states taking over resource tenure is the map. Maps, however, simplify complex local tenure arrangements into two-dimensional “territorial” rights. In Thailand, the territorialization of forest rights was accomplished in a very top-down fashion. Rural people did not participate, for example, in drawing the boundaries of reserves. Similarly, rural people did not participate in land-use zoning programs like the watershed classification system, which now threatens resource access for many upland communities. The result is widespread resistance to reserve forests restrictions and watershed regulations.

Land titling programs can also be understood as a form of territorialization through mapping. Anan Ganjanapan’s article builds on the argument presented by Ernst by showing how land titling not only means setting clear boundaries on the land, but also on who owns the land. Land titling programs typically allocate alienable land rights to administratively-defined households. But the household (or individual members of the household) can sell titled land only if the claims of all other potential claimants are legally extinguished. Anan Ganjanapan describes how this requirement means that the ambiguous and overlapping claims of extended family members become simplified into household-based rights. The elimination of formal claims by persons not part of the administrative household often leads to conflict within extended families, while conflict between local and legal inheritance practices slows down participation in land titling programs.

Weibe and Meinzen-Dick argue that land titling need not concentrate exclusive property rights in individual owners. They describe how in the United States, land rights routinely identify what they call “partial interests”—individual sticks in the complex bundle of rights which make up land ownership. Partial interests are a way of giving legal status to the stake that other potential users or society at large have in the way land and resources are used. For example, they ban certain uses of land which may be detrimental to the surrounding community. The article raises important points about some alternatives to the way that land titling is currently pursued in third world countries. In particular, it suggests that it is possible to allocate land titles which allow communities to regulate how owners use their titled land.

In recent years, NGOs and rural communities have begun to take advantage of new, relatively accessible mapping technologies to counter the long history of top-down state mapping. Community mapping initiatives (sometimes called “counter-mapping”) are spreading around the world, in part through the inclusion of community-based mapping in many CBNRM projects. Community mapping produces the same territorializing effect as state mapping, often through the creation of management plans which map community land into different land use categories. The difference from state mapping is that communities participate in or control the process of territorialization.

Jefferson Fox’s article reviews some of the issues raised by the spread of community mapping. For example, community mapping can destroy the open and dynamic character of local resource tenure practices, freezing them into maps which cannot easily be changed. Community mapping can create conflicts, for example, between villages, because of how maps often eliminate fluidity and overlapping rights among different communities. Peluso’s article provides more detail on two counter-mapping projects in Kalimantan, Indonesia. The first was carried out largely through the initiative of a foreign NGO, whose long-term objective was environmental conservation through community participation. The second was carried out by local NGOs, and the objective was more directly a defence of local resource rights. Together these two cases suggest that community mapping can have many different objectives, ranging from the imposition of controls based on external (often environmental) criteria, to a straightforward defence of local resource tenure practices.

Peluso also takes up the issue of how mapping can reduce flexibility, arguing that counter-mappers can minimize the potential reduction in the internal flexibility of resource tenure by purposely leaving out the details of local resource use. For example, community mappers could leave broad categories of land use such as protection forests or agricultural areas purposely “empty.” This would leave local people more freedom to determine individual or group rights of access, free of the constrictions of resource management plans or maps. This approach seems to be the opposite of that recommended by Rocheleau and Edmunds (above). Community mappers clearly have a range of choices with respect to what they put on or leave off their maps. Perhaps the appropriate strategy is best determined by the local context and the affected people.

References

*A copy of the full-text of each of the following articles is included in this section. To find a reading, flip to the corresponding tab number.
These materials have been reproduced with permission from the publishers.
None of these readings are for sale or further reproduction.*

Concepts

1. Vandergeest, P. 1997. **Rethinking Property**. The Common Property Resource Digest #41:4-6. Reprinted with permission from the Common Property Resource Digest and the author.
2. Rocheleau, D., and D. Edmunds, 1997. **Women, Men and Trees: Gender, Power, Property in Forest and Agrarian Landscapes**. World Development 25(8):407-428. Reprinted with permission from Elsevier Science.
3. Schroeder, R.A. and K. Suryanata, 1997. **Gender and Class Power in Agroforestry Systems: Case Studies from Indonesia and West Africa**. pp. 188-204
Excerpted from: Peet, R. and M. Watts, eds. Liberation Ecologies: Environment, Development and Social Movements. New York: Routledge. Reprinted with permission from International Thomson Publishing Services Limited.
4. Schlager, E. and E. Ostrom, 1992. **Property Rights Regimes and Natural Resources: A Conceptual Analysis**. Land Economics 68(3):249-262.
Reprinted by permission of the University of Wisconsin Press.
5. Kendrick, A. 1993. **Access and Distribution: Two Aspects of Changing Local Marine Resource Management Institutions in a Javanese Fishery**. Marine Anthropological Studies: MAST 6(1):38-58. Reprinted with permission from the past editors and publishers.

Stories

6. Fortmann, L. 1995. **Talking Claims: Discursive Strategies in Contesting Property**. World Development 23(6):1045-1064. Reprinted with permission from Elsevier Science.

7. Ernst, T.M. 1999. **Land, Stories and Resources: Discourse and Entification in Onabasulu Modernity**. *American Anthropologist* 101(1):88-97. Reproduced by permission of the American Anthropological Association.
8. Doolittle, A. 1998. **Historical and Contemporary Views of Legal Pluralism in Sabah, Malaysia (North Borneo)**. *Common Property Resource Digest* #47:1-5. Reprinted with permission from the Common Property Digest and the author.
9. Pendleton, M.R. 1998. **Taking the Forest: The Shared Meaning of Tree Theft**. *Society and Natural Resources* 11(1):39-50. Reprinted with permission from Taylor and Francis.

Maps

10. Vandergeest, Peter. 1996. **Mapping Nature: Territorialization of Forest Rights in Thailand**. *Society and Natural Resources* 9:159-175. Reprinted with permission from Taylor and Francis.
11. Ganjanapan, A. 1994. **The Northern Thai Land Tenure System: Local Customs Versus National Laws**. *Law and Society Review* 28(3):609-622. Reprinted with permission from the Law and Society Review at the University of Massachusetts at Amherst.
12. Wiebe, K.D. and R. Meinzen-Dick. 1998. **Property Rights as Policy Tools for Sustainable Development**. *Land Use Policy* 15(3):203-215. Reprinted with permission from Elsevier Science.
13. Fox, J. 1998. **Mapping the Commons: The Social Context of Spatial Information Technologies**. *The Common Property Resource Digest* #45:1-4. Reprinted with permission from the Common Property Digest and the author.
14. Peluso, N.L. 1995. **Whose Woods Are These? Counter-mapping Forest Territories in Kalimantan, Indonesia**. *Antipode* 27(4):383-406. Reprinted with permission from Blackwell Press.



Rethinking Property

PETER VANDERGEEST

Department of Sociology
York University, Ontario, Canada

MY WORK AND THAT OF MY COLLEAGUES INVOLVED in an Asian Resource Tenure Group involves both a theory of practice and an attempt to develop knowledge useful for strengthening the likelihood that local informal claims on resources might be recognized. We are developing a framework for understanding changing legal and informal tenure arrangements guiding access to forests. I will begin by outlining the framework we use for understanding property, and then discuss briefly some of the ways we have used this framework in workshops and applied research.

Property minimally involves a legitimate and enforceable claim to some kind of resource. As such, property is a set of everyday practices as well as social relationships and rules. To illustrate the complexity of what this implies, I have included a partial list of some characteristics of property that I use in a

course on political ecology:

1. A given item may have different resources. For example, a tree can be useful for fruit, timber, firewood, shade, regulating water flows, habitat for various animals, fixing carbon, establishing property claims on land, or tracing one's ancestry.
2. The same person does not necessarily claim rights to all uses of a given resource.
3. Property rights held by some people may have priority over others.
4. Property is not just about rights to use a resource, but may also be about responsibility. For example, the right to harvest fruit may follow from caring for a tree; right to a swidden plot may be contingent on preventing the spread of fire.
5. Among rural people, priority in rights is often structured through kin relations.
6. Rules or practices structuring priorities of different resources and who has access to them are often not clear-cut.
7. Rules or practices can and do change, as conditions change.
8. There may be conflict between these different uses—for example, should cattle be killed for meat, or used for plowing?
9. Because rules or practices can change, and because of potential conflict, institutions are necessary to resolve disputes, conflicts, and making changes.
10. In order to ensure compliance with dispute resolution, there needs to be some kind of enforcement mechanism.
11. In cases of conflicting property claims, those able to have their claims enforced will be successful.
12. In a given situation, there will be many different forms of property. Rights and responsibilities may be held by individuals, by families, by communities, or by the state. Or all of these, all at the same time. Rules may be unwritten or written. They may be enforced by pressure within the family or community, or by local gunmen, or by state police.

Pauline Peters, in the January 1997 *CPR Digest*, suggests that we need to dislodge the conceptual hold of property as a way of avoiding the harm done by placing all forms of resource uses under the holy trinity of state, private, and common property categories. I too have been uncomfortable with the conceptual hold of terms like common property and the associated empirical search for examples of how undifferentiated

communities control and manage some resources as a group. Rather than abandon the term property, however, a more productive approach is to dislodge the holy trinity and complicate how we think about property.

The importance of understanding property as practice is that it makes us more likely to see how property relations are ambiguous and constantly renegotiated. The focus on the everyday also helps us to see the overwhelming complexity of property. Everyday property practices are shaped by gender, class, kin, political, economic, legal, and many other relationships; they are ambiguous, changing, negotiated. They usually do not fit any clear-cut notion of common, state, or private property, although property practices in a particular place always display aspects of all of these. Even private property is a form of common property insofar as it requires people to get together to set up and enforce a private property regime.

The notion of property as practice can be broken down somewhat. Legitimate and enforceable claims to resources imply that a number of activities are central to property: First, a property claim needs to be communicated to a relevant community (Rose, 1990). A claim that no one knows about is not property, common or otherwise. Second, some group within the relevant community needs to be convinced that the claim is legitimate. Although a thief may claim a car, as long as the relevant community--the owner, the police--do not accept the thief's claim as legitimate, the car can hardly be considered the property of the thief. Third, none of this will be very helpful to the claimant unless the claim to the resource is remembered in some way. Memory can take many forms, ranging from local knowledge about whose ancestor planted a fruit tree to cadastral maps showing land rights. Communication and memory taken together can be understood as texts, incorporated, as Rocheleau suggests in the January 1997 *CPR Digest*, into landscape contexts and contested subtexts about the legitimacy of property claims.

The fourth activity central to property is enforcement. To make a property claim stick, those convinced of its legitimacy need to be able exercise some form of legitimate coercion to enforce the claim. The ability to enforce a property claim is what defines the relevancy of a community. Conflicts over property occur when different communities disagree about a given claim. Although these conflicts are sometimes between state agencies and local communities, they often occur among local people with different ideas about the legitimacy or justice of different claims. At different moments, community can be defined by gender, age, place of residence, occupation, or one of multiple other shifting identities. Communities, in other words, are as ambiguous, overlapping, and fluid as property.

Mention of legitimate coercion might remind many readers of the classic Weberian definition of the modern state, which I would reformulate as an institution which has a clear priority in the use of legitimate coercion over a specific territory. Not surprisingly, states now almost always claim a clear priority in the right to administer property rights. That is, from the point of view of most states, property is not property unless it is communicated, recognized, recorded, and enforced by state agencies.

Beginning at the end of the last century, states around the world began to claim not just the right to be the judge of what counted as property, but also the sole right to act on behalf of collectivities. This in turn allowed states to say that any common resource not owned by non-state but state-defined legal entities (individuals, households, corporations) under procedures specified by state laws and regulations must be the property of the state.

The kinds of practices comprising state-administered property can be contrasted with what I will here label local property. In small communities, where people live for a long time, communication can take the form of oral or locally-meaningful markers; acceptance means convincing a few family or neighbors about a claim; memory is usually achieved by living in a place for a while; and enforcement is done by informal community sanctions. State officials, being unfamiliar with particular situations, rely on written forms of communication such as cadastral maps, a set of formal procedures, and state police or militaries for enforcement. NGOs, who are typically also outsiders to the places in which they get involved, have similarly gravitated to written forms of communication such as community mapping.

Although I am contrasting state and local property as if they are separate, in actual property practices this contrast usually dissolves into a quagmire of competing or ambiguous claims which are the outcome of a long history of relations between state agencies and local people. Most property is neither purely state, or local, but a mix of both, just as women's informal access to edge environments is linked to men's more easily mapped and formally-recognized property claims. No state ever completely takes over the administration and enforcement of all property relations. Most property relations are too complex, too ephemeral, and too contingent for state agencies to record, recognize, remember, and enforce. For example, state agencies seldom bother with multiple and contingent claims to different parts of a tree; rather, they are more likely to assume that the owner of land on which the tree is planted also owns the entire tree. Local practices don't disappear: they just become informal. The most visible are given labels like "cus-

tomary law," or *adat*. But these local practices also change as states use their increasing technological capacity to monitor the landscape. Rural people adjust what they do to take account of a powerful state presence. For example, where I do research in Southern Thailand, tree tenure is slowly being made consistent with land tenure, and local forests are being demarcated as community forests administered by rules defined by NGOs and the Thai forest department.

I should add that the state is not the only agent promoting changes in the way property is communicated and remembered. The expansion or intensification of market relations is also central, although it is important to avoid the misconception that seemingly isolated people have not been integrated into global markets for many centuries. But under market intensification, more and more land and other resources are being made into commodities available for purchase to strangers, people from outside of local knowledge. To buy land or other resources, strangers need to know what they are buying. For this, they need clear boundaries. Strangers, because they are strangers, tend to distrust local knowledge and prefer to rely on the state to remember and enforce property rights, although they often accept local practice when there is no alternative.

Because property practices are complex and change continually as people renegotiate them, we can never fully know a given set of property relations. Because property practices are a set of contingent claims and practices, some recognized, some not recognized by state agencies, a study of "rules" is a very limiting approach to understanding property. One can learn more about property by following people to see what they are doing, and asking them about it, then by asking them about rules. If we begin by understanding property as everyday practices, then the idea that common property is a clearly specified and bounded set of rules set off from the state and from private property becomes limiting.

The search for clearly-defined common property can be understood as a product of the need of non-locals for defining and communicating forms of property that does not rely on long term residence in a place. It is also a result of a particular understanding of what is likely to lend legitimacy to property rights. Any argument for a broadening of our ideas of property and practice needs to address the normative dimension of property; indeed, a good reason for not abandoning the idea of property is that it is about rights and therefore about social justice. Over the last decade, environmental issues have increasingly come to dominate how states, scholar, and NGOs think about property rights. The search for common property is predicated in part on the idea that property rights can flow

from a demonstration that communities can manage resources sustainably. This contrasts with the kind of justifications for property rights expressed by people in my research sites in Southern Thailand, that reported by Rocheleau for people in Zambrana-Chacuey in the January 1997 issue of the *CPR Digest*, and of other researchers working in rural areas. Rural property rights involve a complex mix of moral economies, which may include, for example, an ethic of access for sharing resources (Peluso, 1996), the idea that labor confers property rights, ancestral rights, or even the legitimacy conferred by pieces of paper issued by state agencies. In opening up our idea of property, we also need to broaden how we think about the sources of legitimacy of property.

Members of the Asian Resource Tenure Group have been trying to apply this approach to property in South and East Asia. The advantage of using this approach to study property in rural Asia is that it allows us to step away from looking for relatively less common cases of more narrowly defined "common property," and to step outside the increasingly ubiquitous idea that property rights should be based on criteria derived from the science of resource management. By conducting research on property in multiple sites, the group also aims to create knowledge necessary for a more informed discussion of alternatives for resource management in Asia, and to open the way for greater recognition of the diverse forms of local property.

References

- Peluso, Nancy (1996) *Fruit Trees and Family Trees in an Anthropogenic Forest: Ethics of Access, Property Zones, and Environmental Change in Indonesia*. *Comparative Studies in Society and History*. 38(3):510-548
- Rose, Carol (1990). *Property as Storytelling*. *Yale Journal of Law and the Humanities*, 37-57.



Women, Men and Trees: Gender, Power and Property in Forest and Agrarian Landscapes

DIANNE ROCHELEAU and DAVID EDMUNDS
Clark University, Worcester, Massachusetts, U.S.A.

Summary. — This paper proposes a revision of the concept of property commonly associated with land in analyzing the gender dimensions of tree tenure. Unlike two-dimensional maps of land ownership, tree tenure is characterized by nested and overlapping rights, which are products of social and ecological diversity as well as the complex connections between various groups of people and resources. Such complexity implies that approaches to improving equity using concepts of property based on land may be too simplistic. Rather than incorporating both women and trees into existing property frameworks, we argue that a more appropriate approach would begin by recognizing legal and theoretical ways of looking at property that reflect the realities and aspirations of women and men as well as the complexity and diversity of rural landscapes.

Through a selective review of the literature, particularly in Africa, and illustrative case studies based on our fieldwork, we explore the "gendered" nature of resource use and access with respect to trees and forests, and examine distinct strategies to address gender inequalities therein. A review of the theoretical and historical background of land tenure illustrates the limitations of "two-dimensional" maps associated with land tenure in delineating boundaries of nested bundles of rights and management of trees and forests by different actors. The introduction of gender adds another dimension to the analysis of the multidimensional niches in the rural landscape defined by space, time, specific plants, products, and uses. Gender is a complicating factor due to the unequal power relationships between men and women in most societies. These power relationships, however, are subject to change. Rather than adopting an artificial dichotomy between "haves" and "have nots" (usually linked with men and women, respectively, in discussions of land tenure), we argue that gendered domains in tree tenure may be both complementary and negotiable. If resource tenure regimes are negotiable, they can be affected by changes in power relations between men and women. This idea has important policy implications. In many discussions of tenure, rights are often assumed to be exogenous or externally determined. The negotiability of tenure rights gives policy makers and communities another lever with which to promote a more equitable distribution of rights to the management and use of natural resources. © 1997 Elsevier Science Ltd

Key words — gender, property, trees, forests, agroforestry, Africa

1. INTRODUCTION

The concept of tenure has been complicated—and enriched—by two convergent streams of inquiry and practice over the last decade. The multidimensional nature of not-so-neatly-nested and overlapping rights to and uses of land, water, plants, animals and their products has occasioned a rethinking of theoretical and legal constructs of property. Concurrently, the issue of equity among multiple resource users emerged as a major challenge to environmental, development and resource management agencies. The historical emergence of feminism and concerns over gender inequality in international development has served as a doorway into the social relations of power (both conflict and affinity) that both shape and

are conditioned by the definition, distribution and control of property (whether it be private, public or "common").

The combination of gender and resource tenure concerns has stretched the tenure question beyond two dimensional maps of land ownership to address multidimensional realities, characterized by social and ecological diversity and complex webs of connection between various groups of people and the resources that sustain them. In this selective review and conceptual framework we outline the "gendered" nature of resource use, access, control and responsibility with respect to trees and forests. We also examine distinct strategies to address gender

Final revision accepted: March 4, 1997.

inequalities in this domain. We propose a multiple user approach to the treatment of property in agriculture and forestry research and development that is informed by gender analysis, rather than using gender analysis to "gender-equalize" the existing tenure framework with respect to trees and forests. This approach includes a focus on the interaction between gendered property relations and gendered resource uses, user groups, landscapes, and ecosystems.

2. HISTORICAL AND THEORETICAL BACKGROUND

(a) *A brief history*

Much of the current literature on gender and resource tenure is rooted in the forestry and agroforestry initiatives of the 1980s and their encounter with the complexities of social relations, landscapes and property regimes in forest, agrarian and pastoral communities around the world. In communities from the Amazon Basin to the Sahelian savannas, forestry and agricultural development agencies confronted the need to deal with the distribution of resources between communities and households, as well as the gender division of use, access, management and legal ownership rights within households. In many parts of Africa land tenure reform had been implemented primarily in highly commercialized areas, while the majority of rural communities, particularly in drylands, continued to operate on a combination of "traditional"¹ and "modern" property regimes. These were governed officially by codified "customary" law and statutory law, respectively. The customary law recognized by the state was usually codified by colonial anthropologists or administrators, often at a fixed time, and then maintained as a permanent legal standard.² These codes often applied to combinations of common and private property rights and usually included nested rights of use and access to land and/or specific resources. Often these specific resources were located within larger areas with control and/or legal ownership vested in a lineage, clan or other form of extended kin group (Okoth-Ogendo, 1991; Pala-Okeyo, 1980; Rocheleau, 1988a; Agarwal, 1994, 1995). As researchers reviewed the codified "customary law" regulating land tenure, tree use and management and documented the actual practices reflecting rights to trees and forests they encountered the limitations of two-dimensional maps and simple constructs of property. These constructs proved inadequate to delineate the boundaries of the nested bundles of rights (Riddell, 1987; Fortmann, 1985) governing tree use, access and management by a variety of actors.

A considerable clarification of resource tenure also came with the realization that even within seemingly unitary blocks of private property used by "households" there were complex structures and processes governing the gendered division and sharing of resources. The juxtaposition of simple, unitary blocks of land as property, with the complex, gendered systems of tree use, access, responsibility and control alerted forestry and agroforestry field workers, planners and policy makers to the multi-dimensional nature of resource tenure in general, even under private property regimes.

This new vision of multiple and overlapping domains gave rise to new constructs of multi-dimensional "niches" in the landscape defined by space, time, and specific plants, products, and end uses. Occupation of these niches was governed by legal (or otherwise formally codified) property rights, which were determined and/or modified by: historical precedent of use and access; identity; social relations of power (including both conflict and affinity); daily patterns of use and management; and long term investment of labor (Rocheleau, 1988a, b; Bruce, 1989; Bruce *et al.*, 1993). These formal and informal rules were seen to be nested within a power hierarchy or, alternatively, embedded within a moral economy framework. Furthermore, these rules reflected resource, tenure and land use categories that depended on culturally distinct constructions of land use and landscape (Croll and Parkin, 1992; Posey, 1985; Rocheleau and Ross, 1995; Leach, 1994; Carney and Watts, 1990; Fortmann, 1995; Moore, 1993).

The shift of gendered tenure analysis from land to trees and forests challenged the prevailing constructs of gender relations in development circles. Both the liberal and socialist feminist approaches to Women in Development had postulated a polarized, hierarchical gender structure in which some men had land and most women did not (Davison, 1988). As the venue of the gendered tenure discussion moved to trees, forest, crops and animals the constructs had to be reformulated to accommodate complementarity of gendered domains of resource access, use, control and formal ownership (one means of control). Feminist cultural ecologists and field practitioners noted the complementarity of gendered labor, knowledge (Jiggins, 1988) places (Rocheleau, 1988a; Fortmann and Nabane, 1992) and social organizations (Thomas-Slayter and Rocheleau, 1995a, Thomas-Slayter and Rocheleau, 1995b). Given the tenacity of gender ideologies and power relations (Moore, 1988; Jackson, 1993) we suggest a construct of flexible complementarity under uneven relations of power, in which men may exercise their power to define a new complementarity more to their advantage.

While these new understandings of multiple

resource users made for a more realistic appraisal of the situation, they also complicated the understanding and application of resource tenure concepts within forestry and agricultural development, research and policy. The logical outcome of such a project is nothing less than the reinvention of the formal and procedural relations between technology change, tenure, and social organizations.

(b) *Theoretical insights and policy relevance*

Feminist poststructuralist theory has increasingly recognized complexity (Mohanty, 1991), superseding easy dichotomies with visions of multiple poles of identity and shifting force fields of power governing both conflict and affinity among groups of people (Haraway, 1991; Harding, 1991; Watts, 1993; Rocheleau, 1995; Rocheleau *et al.*, 1996). The composition and alignment of affinity groups based on shared interests may change substantially depending on the issue in question, as may the evidence of actual patterns of resource definition, use, access, management and control in local forestry and agriculture. Recent examples from the Rubber Tappers movement in the Brazilian Amazon (Campbell, 1996), the Lacondon Rainforest of Mexico (Arizpe *et al.*, 1993), a social forestry project in the Dominican Republic (Rocheleau and Ross, 1995) and the Joint Forest Management Program in India (Sarin, 1996) all demonstrate shifting alliances within social movements based on gender, ethnicity and wealth.

The encounter with complexity and the embrace of multidimensionality create a much richer and also a far more difficult template for technology change. Theoretical niceties aside, it is not easy to design, let alone implement, a forestry, agroforestry or agricultural project to address economic, environmental and equity objectives within such a complex (and shifting!) tangle of tenure relations. Some development specialists have strongly resisted the inclusion of gender issues, citing the introduction of "overwhelming complexity" into what seemed a "manageable" model of technology and land use change.

In the domain of technology transfer programs the reinvention of the property model as a shifting constellation of interests in a multidimensional domain of resource tenure would seem to require a heroic marketing effort, to say the least. In popular social movements the academic rhetoric of feminist poststructuralism is also unlikely to galvanize support or generate enthusiasm, and even when clarified may be seen as a threat to movement cohesion. But, the fluidity of purpose and identity described by this theoretical school does capture both the daily practice and the long term development of social movements involved in gendered

struggles over tenure. It also reflects the situation of individual women with complex identities and multiple affinities engaged in both daily personal struggles and collective efforts to improve their security of tenure over trees, forests and other resources in rural landscapes. There are many good reasons to further explore this theoretical direction and equally compelling reasons to restate it in simple terms and to clarify the practical and policy implications through maps, sketches and stories, as well as numbers.

The sections that follow trace the progression of gendered resource tenure from land as private property to the gendered domains and shifting terrains that tie everyday farming, forestry and pastoral practice to social constructs of self, society, nature, resources, rights and privileges. The paper also traverses the spectrum from the instrumentalist arguments for gender equity in tenure, grounded in economic efficiency and resource conservation, to the more socially and politically focused arguments couched within the context of a moral economy. In the latter case the tenure dimension of agriculture, forestry and conservation is treated as an instrument of women's and men's empowerment (Agarwal, 1994), rather than the opposite. The paper explores the history and the debates surrounding gendered resource tenure with a strong but not exclusive emphasis on East Africa, where we have observed and discussed the dramatic and visible juxtaposition of distinct tenure regimes with a wide diversity of people in rural communities.

(c) *Gendered tree and forest tenure in Africa*

In this section, we examine three different approaches to the complexity and dynamism of gendered resource tenure regimes: (i) differences in men's and women's rights to own land with formal title; (ii) differences in the spaces and places in which men and women use trees and forest resources and in which they exercise some control over management; and (iii) differences between men's and women's access to trees, forests and their products through several, nested dimensions (i.e. gendered space, gendered access to resources within a given space, gendered access to products of a given resource, and gendered access by season or other measure of time). For each of these conceptual approaches, we discuss a number of issues of both theoretical and practical significance in the study of tenure regimes, ranging from the appropriate scale of analysis to the practical effectiveness of *de facto*, customary tenure. Next, we elaborate a typology of tree and forest resource access possibilities, accompanied by case study material from specific communities in Kenya. We end by discussing the

importance of social relations to the question of resource access and the need to focus on decision-making processes and social organizations as well as fixed and formal rules of tenure structure in assuring both women's and men's access to and control over natural resources.

What emerges from our review of the research of others across the continent and our own experiences in East Africa is a picture of highly complex, often negotiable resource tenure regimes. Women's rights, though frequently tenuous and under pressure from a variety of changes in land use, family composition and household structure, are still substantial. Evolving customary practices have, in some cases, maintained women's access to resources and warrant efforts to protect, enhance or reconfigure customary law into more robust, equitable statutory law and administrative procedures. In yet other situations women have been able to establish independent wealth in land and trees based on acquisition of private land through the market and sale of cash crops such as cocoa (Berry, 1989, 1993; Lastarria-Cornhiel, 1995). In response to this complexity, we recommend a flexible, user-based approach to resource management interventions based on the active participation of all resource users in all phases of program development, including research and planning as well as the implementation of specific initiatives. We argue that flexibility is best achieved, in turn, when: multiple land, water, plant and animal uses are emphasized; renewable rather than consumptive uses of resources are favored; and access and use rights are as carefully codified and enforced as rights of ownership and disposal.

This reorientation in programmatic focus must also be accompanied by changes in legal and administrative frameworks that support women's access rights. Specifically, outside agents could encourage the development of: (i) legal rights and administrative procedures that accommodate multiple uses and multiple users, including women's use and access rights on male private property, community property, and property controlled by public officials; (ii) formal recognition of gathering as a valid land use, particularly in areas bordering national parks; (iii) complementary involvement of men and women in the processing and marketing of particular products from particular land use systems, or land use systems that include a mix of separate products, processing, and marketing activities some of which are already controlled by women; (iv) legal recognition of customary law, revised to restore a balance between men's and women's rights and responsibilities; or (v) procedural reforms to allow women's organizations, and other organizations with a strong representation of women, to participate in the formulation and enforcement of codes and project contracts that protect men's and women's

rights and responsibilities in established, evolving or experimental land use practices. We will return to these recommendations as we describe specific tenure regimes.

(d) *Land ownership and formal title*

Throughout most of Africa, women are much less likely to hold formal title to land than men (Lastarria-Cornhiel, 1995). It has been argued that women's inability to obtain formal land titles puts them in a position of extreme dependence on men with respect to tree and forest resource access. Women may have little control over which crops are grown, where trees are cut or planted, or how fallows are managed, without their own title to land.

For work which is restricted to an analysis of formal tenure alone, women's subordination with respect to tree and forest resource access is seen to rest in their exclusion from formal tenure regimes. The emphasis is on "bringing women in" to these formal regimes as they are presently constituted and evolving. In most African countries, this means encouraging women to seek individual ownership and exclusive rights of use and management (Zwart, 1990). Changes would have to be made in national legislation to encourage the titling of land to women, either as part of a joint husband-wife title if married, or as an individual if the woman is widowed or single.

The focus on land titling often underplays the significance of women's existing resource use and ownership rights as encoded in the customary law of many societies. For example, among Swahili people on the Kenyan coast Muslim women may own cashew trees on lands owned by male relatives. Their rights extend to restrictions on land uses incompatible with cashew production (Fortmann, 1985). Such systems, however, are built on an assumption of continuous occupance by multiple users embedded within kin groups; they do not accommodate land market practices that treat land as an exchangeable and interchangeable commodity. Women who enjoy access to a variety of tree, forest and rangeland resources across the rural landscape may find their access restricted after formal land titling or land tenure reforms have invested greater powers of exclusion in land owners, whether male or female. Even where formal title is given jointly to a husband and wife, a woman may lose decision-making authority over her former domains on and off farm as the household "heads" take on the full and exclusive responsibility for the management of household land and all the plants and animals upon it.

In cases where privatization of land is already established or well underway, it is important to

assure that women have rights of land ownership as a necessary, if insufficient step in improving their access to trees and other natural resources (Agarwal, 1994, 1995). Policymakers, extension staff and project designers and managers working on such cases should be alert to opportunities to encourage appropriate changes in both national statutory law and various versions of customary law. Ugandan national legislation, upheld by local committees, has defended the rights of widows against the land inheritance claims of their sons in many communities. In a more locally based initiative, fathers in one community in Machakos District, Kenya, have begun to allocate land to single daughters who have had children, in a break with longstanding local practice (Rocheleau *et al.*, 1994a). This change has been sanctioned, even encouraged, by local elders in an effort to make a place in the world for women and children who had been rendered "homeless" and "illegitimate" in the terms of their own culture.³ Outside development agents in such situations could encourage these changes by recognizing and acknowledging the landholdings of single mothers or widows, including their households as a distinct user group for forestry and agroforestry technical assistance.⁴

(e) Gendered spaces and places

Another approach to understanding the gendered nature of tree and forest tenure regimes is to focus on the separation of women's and men's activity and authority in space. In other words, efforts should be made to uncover, recognize and reinforce those spaces in the rural landscape in which women exert relatively more control over resource management decisions and from which they are more likely to derive personal benefits. Carney (1988) has shown, for example, that Gambian women often have separate rice fields within "family" landholdings which they can manage, largely independent of their husbands and other male relatives, for their personal benefit. Though lacking formal legal tenure, their customary rights to this land are tenable, and must be dealt with in any attempt to change land use patterns (Carney, 1992). Similarly, Leach (1992) has discussed the development of women's control over swamp rice cultivation in Sierra Leone. In this case, women have taken advantage of a part of the landscape considered undesirable by men to establish gardens for the food crops that supplement rice in the diet and that survive drought conditions when other crops perish.

Women's spaces are not always as easy to identify in the landscape as separate fields might be. They are frequently found in the "in-between" spaces not deeply coveted by men but still quite useful to

women (Fortmann and Bruce, 1988; Rocheleau, 1988b; Leach, 1992). Such spaces could include the bush growing along roadsides and fence lines, the small garden plots next to the house; the interstices above, below and between men's trees and crops; or the "degraded" land found on steep, wooded hillsides or in overgrown erosion gullies. Resources such as fuelwood, medicinal plants, wild foods, and grasses for weaving and thatching are found in these spaces, and are often critical to women's efforts to meet their personal, household, and community responsibilities (Rocheleau, 1991).

In some areas of the continent, the "bush" may also be a place where women enjoy substantial rights to use and manage resources. Until recently, when population pressures and privatization began to affect even the remotest of Africa's landscapes, many of these areas were treated as a commons of one sort or another. As is the case for the "in-between" spaces discussed above, women did not have exclusive rights in these bushlands. They did enjoy, however, well-established use rights, and perhaps even *de facto* management and disposal rights to many of the resources found there (Davison, 1988; Edmunds, 1997).

In contrast to some of the work done on formal tenure regimes, the analysis of gendered space and place focuses attention on *de facto* rights based in customary norms and everyday practices. Interventions are sought at the community and household levels which establish new resources in places already controlled by women, as when exotic fuelwood tree species are planted along gullies or new vegetables are introduced into home gardens. Efforts may also be made to create altogether new spaces over which women have some authority. This is sometimes achieved through the formation of women's groups, which in certain circumstances can gain access to and maintain a measure of control over public or disputed resources more readily than individual women (Zwart, 1990; Chimedza, 1988; Rocheleau, 1991; Schroeder, 1993; Rocheleau *et al.*, 1994b; Asamba and Thomas-Slayter, 1995; Agarwal, 1994). Involvement of such women's organizations in planning and managing project interventions can help to assure that the resources developed through project activities will be available to women.

The attention to customary practice also leads to an analysis of the differences in the way men and women benefit from the products of resource use. In many cases, though women have substantial labor and management responsibilities for a particular resource, men control the disposal and/or marketing of the products of that resource, as well as the distribution of benefits within the household (Tibaijuka, 1984; Chimedza, 1988). This is often the case

when women contribute substantial labor to production of tree cash crops such as coffee, cocoa, citrus and other fruits, fodder shrubs, commercial fuelwood or timber on "household" or "community" fields. Women may do much of the planting, weeding, and harvesting, but turn over the product for sale to their husbands or other male relatives, as in the case of rice in The Gambia (Carney, 1992). Such may also be the case when women are involved in "community" reforestation projects, when women care for nurseries, and transplant seedlings, but men make use of the trees for poles (Rocheleau, 1991). Project and policy interventions can make explicit reference to who disposes of tree products and help women to avoid situations in which their labor is exploited largely for the benefit of others. Outside agents might also encourage the development of new areas of complementarity for men and women in the processing and marketing of specific tree products from particular land use systems in order to improve women's access to product benefits.

By focusing on the household and community scale, the gendered space approach further illuminates the differences among women in interests, rights and responsibilities. Age and, in polygamous households, order of marriage are important factors in determining women's rights and responsibilities under customary resource tenure law. Among the Luhya in Kakamega, Kenya, older widows have significantly greater decision-making power with regard to the planting, care and disposal of woodlot and fencerow trees than do younger widows (Bradley, 1991). Wealth is also a significant factor (Chimedza, 1988). Poor women in particular rely heavily on the tree products in "in-between" spaces in the landscape, as documented in Machakos District, Kenya, which supports recognition of these interstitial spaces in technology design, land use planning and policy (Rocheleau, 1991). In each case, differences among women's access to space have implications for their participation in reforestation projects, the likelihood of project success, and the impact of forestry interventions on their lives.

Finally, research on gendered space has helped us understand better the politics of gendered resources at the subnational level, in specific communities (Carney, 1988; Leach, 1994; Fortmann, 1995; Rocheleau, 1991). Schroeder, working in The Gambia, has shown how women have resisted, both through formal legal proceedings and through subtle acts of sabotage, attempts by male landowners to convert women's lucrative vegetable gardens to orchards and woodlots (1993). Landowners manipulated customary law to compel women to plant trees in their rented garden fields, which eventually shaded out the women's crops and displaced them from the garden sites they had fenced, watered and fertilized with women's project funding and their

own labor. Women in the Kibale forest region of Uganda have documented women's resistance to the conversion of "degraded" hillsides into so-called community forest plantations, largely at the disposal of men, by uprooting or trampling seedlings (Edmunds, 1991).

These political struggles over gendered spaces are carried out most often under the impetus and authority of the local "moral economy" (Scott, 1976), rather than the formal legal system (Moore, 1993; Edmunds, 1991, 1997). Their outcomes therefore depend heavily on personal social relations and the creative interpretation of local histories, values, and ambitions (Fortmann, 1995; Moore, 1993).

While analyses of gendered space are a welcome complement to studies of women's lack of access to formal land ownership, we would suggest that further elaboration is necessary. The trend in land use change throughout much of Africa seems to indicate a steady loss of "bush," as well as many of the larger "in-between" spaces to which women have substantial rights of access today (Croll and Parkin, 1992). Project planners and policy makers might slow this trend by prioritizing nonconsumptive uses of the resources found in these spaces, in most cases to the advantage of women. Recognizing and evaluating realistically the contributions of women's gathering activities to local economies might also make it more difficult to justify the clearing of bushy lands on which women currently rely. These efforts to stem the conversion of bushy lands, however, will not be sufficient in and of themselves to assure women adequate access to the tree and forest resources they need.

Development and advocacy agencies can also reinforce and expand women's rights as users of resources located within the private and community spaces belonging ostensibly to men (Rocheleau, 1988a, 1991; Fortmann and Bruce, 1988; Bruce *et al.*, 1993; Schroeder, 1993). As these "male" landscapes change, they are constantly creating new, albeit smaller "in-between" spaces—scattered patches of uncultivated land; thin ribbons of vegetation separating fields; understories in coffee or cocoa gardens—as well as new categories of resources by type or by value. Broader efforts to improve women's access to separate field, forest, tree crop and garden plots are clearly needed. But, women's ability to assert, and perhaps formalize, their rights to the resources within even these smaller, constricted "micro-frontier" spaces will be of vital importance to them as they try to meet their daily responsibilities.

(f) *Gendered access to nested resources*

Recognizing men's and women's separate spaces

does not necessarily tell us who has what level of access to which resources, as both women and men often enjoy the use of specific plants and animals within public spaces or on the private property of others. Women's rights generally depend on a relationship to the individual or group exercising "ownership" rights of disposal and exclusion as well as practical control. There are nevertheless strong social pressures to adhere to norms of behavior which support women's access. Where customary law is still widely respected, women can often call on male leaders to enforce their access rights to trees, forests, bush lands and their products when they are challenged by their husbands or other male relatives (Talle, 1988; Rocheleau, 1991; Asamba and Thomas-Slayter, 1995; McLain, 1992; Edmunds, 1997).

These rights may be most easily understood in reference to the "bush" or commons. Talle, for example, has described Maasai women's rights to graze goats and sheep in the bush surrounding their homesteads, even though the fodder trees and grasses are found in common property managed and controlled by men (1988). Others have discussed women's rights to gather nontimber forest products in community forests (Hoskins, 1982; Rocheleau, 1991; Fortmann and Bruce, 1988). Yet women exercise such rights in what is more clearly private, cultivated land as well (Bruce *et al.*, 1993; Chavangi, 1984; Pala-Okeyo, 1980). Certainly women often lay claim to the right to gather a variety of medicinal plants, wild foods and other products on land controlled by their husbands (Rocheleau, 1991; Leach, 1992).

Women's gathering rights may also be recognized outside the family, based on local standards of "neighborliness" and reciprocity, joint membership in formal and informal associations, or a host of other locally defined relationships (Edmunds, 1997). McLain (1992) outlines a case in Mali where women, as borrowers of land, have no claim to ownership of trees, but still may negotiate substantial benefits from the trees located on their "borrowed" plots. In the Kibale forest region of Uganda, women may negotiate access to a male neighbor's swamp land based on the respect and assistance accorded elderly widows and her good standing in the community (Edmunds, 1997). In other cases women's spaces clearly contain resources available to men. In many communities men lay claim to timber tree species and commercial cash crops whether they are located in women's fields and gardens or not (Fortmann, 1985; Rocheleau, 1988a; Schroeder, 1993). This suggests that the function of the tree, tied to prevailing norms of the gender division of labor and authority, substantially influences the interpretation and enforcement of gendered property rights in trees.

Often we must disaggregate rights of access to

specific plants and animals still further to look at which products—timber, fuelwood, fruits, fodder—are controlled by women and which by men. In many parts of Africa women have well-established rights to collect both fruit and deadwood from men's trees (McLain, 1992; Bruce *et al.*, 1993; Rocheleau, 1988a). Leaves taken from men's trees are also available to women in some communities for forage, mulch, compost, or medical uses (Rocheleau, 1991). These bits and pieces of the landscape, despite being found on "men's" resources, are another point of intervention for programs designed to improve women's resource access. The choice of fruit tree species in Kabarole, Uganda, for example, may imply greater or lesser advantages for women; though men control both avocado and citrus trees, the poor market for avocados means that women enjoy freer access to the fruits for use in the family diet or in local gift exchanges. Outside development agents can support women's access to these products by helping to design interventions which focus on the products over which women have some measure of control, particularly in agricultural landscapes. In "bushier" areas, they might also employ a strategy of supporting women's gathering rights as a legitimate land use within both customary and formal tenure regimes.

Variability of access over time is also a critical factor in many resource tenure regimes. Often this is relatively predictable, as when women make use of "men's" croplands during the dry season in order to graze livestock, or use fallowed fields to harvest wild foods (Rocheleau, 1991; Leach, 1992). If we again disaggregate access rights, we see that seasonal variation may be a factor in shaping access to specific resources and products. Fodder trees and shrubs controlled by men during the dry season, for example, may be available to feed women's livestock during wetter months.

Temporal changes in access are not limited to seasonal or other relatively predictable variations; they also apply to periodic events. For example in Machakos District, Kenya, in 1985, men and women renegotiated terms of access to land, water, trees, and food during droughts and famines (Rocheleau, 1991). During this particularly severe drought, poor women in many semi-arid communities were allowed to collect fodder and fuelwood from the private plots of wealthier residents that they could use to support themselves, their remaining livestock or to sell to earn cash and buy food. Behnke and Scoones (1992) have discussed a similar flexibility among pastoral groups in Botswana with rangeland resources, while Peters has reported variability in access to water sources based on changing local drought conditions (Peters, 1986, 1994). Interventions which reduce the flexibility of these tenure regimes by, for example,

developing rigid quantitative limits on harvesting forest products or by locating decision-making authority outside the area affected by drought, may bring disaster upon the land and resource poor, and should be avoided.

Yet another important dimension to consider in assessing men's and women's access to trees and forests are the identities of the various users and their relationships to one another. Of course, gender itself is an integral part of one's identity, and we have shown how it shapes resource access in significant ways. Membership in a particular kin group or family may also be an important and immediately evident criterion in gaining access to resources on land controlled by that group (Bruce *et al.*, 1993; Croll and Parkin, 1992). Yet other aspects of a user's identity may not be so immediately obvious. Membership in an informally organized labor exchange network has been shown to affect women's access to resources in many locations across Africa (Rocheleau, 1991; Asamba and Thomas-Slayter, 1995; Zwart, 1990; Thomas-Slayter and Rocheleau, 1995b). Gift-giving and other customary means of strengthening personal relationships are still in evidence in many areas as well (Leach, 1992). The Akamba have revived (and transformed) *mwethya* groups, a traditional form of labor exchange, in Machakos District, Kenya as a way of improving women's access to resources (Rocheleau, 1991; Asamba and Thomas-Slayter, 1995). The development of patron-client relations among women from resource rich and poor families has also been reported for *mwethya* groups in some communities where social differentiation is sharpening under land use intensification (Rocheleau *et al.*, 1994a; Thomas-Slayter and Rocheleau, 1995b). In other situations, women seem to be working through more "modern" associations, such as tree planting clubs or churches, to try to strengthen their claims (Rocheleau *et al.*, 1994b).

With the increasing intrusion of state legislation into customary law and practice, we may find women spending more and more of their time trying to shape that relationship more effectively as well (Rocheleau *et al.*, 1994a). Women's groups in Mbiuni location in Machakos District have already attempted to reshape labor obligations with respect to community resource management. In particular, they have refused to work alone on infrastructural development, forestry, water and soil conservation projects organized by local chiefs to benefit the entire community. They have instead demanded that men and youth contribute their labor as well, thus freeing up more of the women's time for their own individual and group activities (Rocheleau *et al.*, 1994a), including continuing efforts to establish timber and fruit trees in gardens, fencerows and woodlots.

While this is not an exhaustive list of the dimensions through which we can understand how access to trees and forests is gendered, it should be sufficient to point out the necessity of looking beyond women's lack of formal land tenure and a strict analysis of gendered space. A complex network of access rights exists in most rural African communities which calls for carefully crafted project and policy interventions. Currently, interventions in community forest management, farm forestry and agroforestry frequently invest all access rights in a single "owner," partly for the sake of bureaucratic simplicity and efficiency, partly on the assumption that such "owners" need exclusive rights in order to manage their land effectively. Unfortunately, because women's rights to resources do not generally include the primary rights of disposal and control, interventions which invest exclusive ownership rights in a single individual undermine women's customary rights of access to trees, tree products and other vegetation. Forestry projects and programs can better protect women's access rights by allowing for multiple uses of specific spaces and resources by multiple users, and by prioritizing nonconsumptive uses, such as the gathering of fruits or harvesting of fallen wood, prunings, coppiced wood or leaf fodder which do not preclude most other uses.

Another lesson which emerges from this sort of analysis is the role of negotiation and bargaining in most customary resource tenure regimes. With the pattern of access so complex, so dependent on users identities and so sensitive to changing ecological, economic and social conditions, hard and fast rules are difficult to apply in everyday practice. Even the most established and clearly codified rules are constantly being reinterpreted, renegotiated, reconstituted or rejected. This is particularly true where livelihoods are undergoing rapid change, as in areas of high male emigration (Palmer, 1985), large environment and development projects (Barrow, 1992; Edmunds, 1997), state resettlement schemes (Talle, 1988; Rocheleau *et al.*, 1994b; Chimedza, 1988), or significant and recent market integration (Jackson, 1985; Carney, 1988; Thomas-Slayter, 1992). The dynamic nature of their political, economic and ecological contexts cause shifting alliances among affinity groups, as in the case of women in western Uganda who supported the planting of men's timber trees on their fuelwood gathering lands, to protect the entire community from eviction by outsiders (Edmunds, 1997). They subordinated their interests as women to the maintenance of larger group rights to land against other communities or outside interests. This choice represented a conditional and contingent, rather than categorical, shift in the women's priorities for group solidarity.

In spite of the value of codified customary law

that recognizes women's nested rights to trees, forests and their products, some caution is in order. The danger of too literal an application of gendered tenure over forests, trees and their products is that codification of these customary systems of resource tenure may not have distinguished between the place and the function and value of the resource in question. For example, ethnographic accounts might note a gender division of plants and products such that the plants along the fence are women's business, gardens are women's domains, or distant common gathering areas are under the management of women. In some cases researchers report that men manage animals and women cultivate while in other cases the opposite is true.

These divisions may express complementarity of resource control and management in parallel, equally valued domains. But, such arrangements may also simply reflect the fact that these women's places, plants, animals and products were residuals and leftovers, either background or abandoned parts of the landscape, attributed to women because of their irrelevance or secondary importance to men's activities at that time. In the latter case, as the status of these resources and places changes and they become commercialized and more valuable they may be redefined as men's places, plants and products. Such a change would not imply an erosion of gendered domains but rather a reassertion of the gender ideology of flexible complementarity under uneven relations of power. In such a situation men would not be erasing the imprint of gender on the landscape; they would simply be remapping the boundaries between gendered terrains to maintain their continuing privilege, reflecting the changing distribution of power and wealth in the landscape. This has been widely reported in the case of the commercialization of fuelwood, which has occasioned a shift in gendered control over the trees, the products and the enterprise (Fortmann and Rocheleau, 1985; Hoskins, 1982).

The power to draw the boundaries between gendered domains resides in varying degrees, though not entirely, with men. In such cases technology, land use and tenure changes introduced from outside may precipitate a radical redefinition and valuation of "resources" and a subsequent reconfiguration of gendered spaces, species and products by men. Likewise women may seize the opportunity of change to seek greater advantage in the gender division of resources. The long term effect of these changes on land and labor efficiency of tree crop production or forest conservation may or may not be positive. Women may be displaced or lose access to vital resources or they may gain increased flexibility to independently access resources through the market, depending on the context, as well as class, ethnicity, age or other differences between women.⁵

Flexible guidelines or norms of access and careful attention to women's groups as property holders therefore seem much better suited than rigid regulations to people's everyday practice in most areas of Africa. Flexible guidelines are open to negotiation, based largely on the social and political relations among users. As feminist poststructuralist scholars have suggested, ignoring the role of negotiation in social processes allows more powerful groups to naturalize those relations that benefit them. An explicit recognition of the importance of negotiation may provide women better opportunities to defend existing rights to resources, and to expand those rights as social and ecological conditions change. Rural women recognize the importance of social relations in these negotiations and often spend considerable time and energy nurturing and maintaining relationships with each other, with male neighbors, and even with more distant authorities as a means of securing access to resources (Rocheleau, 1991; Edmunds, 1997). There is a growing concern for improving women's influence over decisionmaking, for strengthening their voice in the process which creates (and recreates) the rules which govern resource access and control (Chimedza, 1988; Rocheleau, 1988a, 1991). This would seem to imply involvement of both men's and women's organizations in each new project contract and in the ongoing development of land use codes (Hoskins, 1982; Fortmann and Rocheleau, 1985). It will also mean assuring that women have equal access to technical and administrative information which will affect tree and forest management. Only then will women be able to protect their rights in conditions of unpredictable social and ecological change.

(g) *Typology of resource access possibilities in several dimensions*

To illustrate some of our points in another way, we have created a typology of resource access possibilities that highlight how access is gendered along different dimensions. We match each "type" with examples taken from case studies and field experience.⁶ Each example has access dimensions other than those we have chosen to discuss. The typology is an illustrative device to clarify the complex realities of tree and forest access, not to represent those realities completely or perfectly.

3. TYPES OF GENDERED SPACE

In many places men and women have separate spaces in the form of separate farm plots, with one or both or neither having legal rights of ownership. In some cases women gain access to land independently

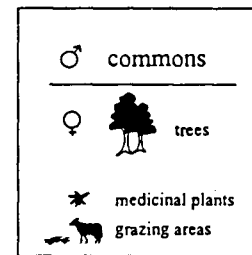
of their husbands, enjoy substantial management rights and responsibilities on that land, and control the products of their land and labor. Women may have their "own account" gardens or croplands, as documented in The Gambia (Carney, 1988), the Mende in Sierra Leone or in areas where Islamic law allows women to inherit property (Jackson, 1985; Lastarria-Cornhiel, 1995). Land title may be an enabling but not sufficient condition for women to exercise control over the use, management and products of trees on their plots.

Regardless of women's landholding status, their forests and trees are often in spaces controlled by men, whether under customary or statutory law. There is a real need in many places for women to gain title to forested property to preempt clearing, whether it is currently under common or private property regimes. The option of formal title deeds to land or trees held by women's groups is one possible solution, although unequal relations of power within women's groups may still limit the access of some women to tree and forest products. Overall, there is real scope, but not much precedent for inclusion of complexity within new laws or procedural rules governing access to and use of trees, regardless of the property regime for land.

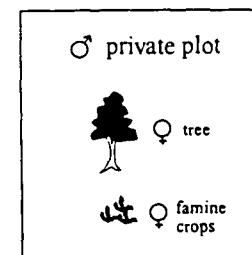
4. GENDERED ACCESS TO RESOURCES WITHIN A GIVEN SPACE

The gendered separation and nesting of land and tree rights takes many forms. Figure 1(a) outlines a situation in which women have rights to specific trees within what is generally understood to be a men's commons. Talle has described how women have had unrestricted access to the wells, fodder and fuelwood trees which Maasai men maintain in their common pasture grounds, on the presumption that take little and use the resources for domestic needs (1988). In more heavily-wooded areas, women residents may enjoy relatively free access to all but a few commercially valuable plant species in bush held by a men's clan or other corporate group (Hoskins, 1982). Women's rights to trees, shrubs and grasses found in common lands are based almost entirely on customary law and the political processes which sustain it. They therefore must engage from time to time in activities which reinforce their rights to common areas, such as resistance to the privatization of bush and forest (Edmunds, 1997), or joining women's groups performing work in common lands. But with the commons rapidly disappearing as a legal category on two-dimensional maps, women in many areas are investing more of their time in developing new ways of obtaining access to trees and other forest and bushland resources on what is formally private land. In

a Women's access to specific resources on commons controlled by men



b Women's access to specific resources on men's individual plots



c Men's access to specific resources on women's individual plots

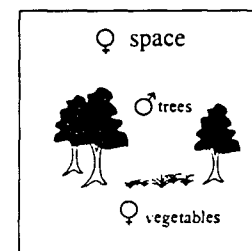


Figure 1. Gendered and shared access to resources on individual, public, and common lands.

Machakos District, Kenya women have largely reasserted the commons through labor exchange groups which negotiate the exchange of group labor for grazing and gathering rights (including fuelwood and tree fodder) on the holdings of wealthier members (Rocheleau, 1991).

Figure 1(b) illustrates a case where individual men have significant rights of management and disposal over a plot of land (from formal ownership to *de facto* control), but where women retain the rights to gather wild foods and medicinal plants from trees, shrubs and annual plants. Women may even enjoy the right to manage some of these resources, as when they plant, protect and prune "scrubby" *Sesbania sesban* trees on men's plots (Bradley, 1991), or sow cotton or other "small things" in the midst of men's upland rice fields (Leach, 1992). To

our knowledge, such rights have yet to be officially recognized by statutory law in the region but continue to be protected under the customary law of a wide variety of ethnic groups. As we have already mentioned, however, women's rights of access to these resources are under threat as the commercialization of agriculture shifts cropping systems to strictly controlled monocultures, with fewer "small things" and "wild trees" left in the field. Technological interventions which cannot tolerate "weeds," bushy areas, polycultures and other "spaces" where women find a variety of resources should therefore be discouraged in most circumstances, or allowances need to be made for alternative spaces for women's trees and "minor" crops, or for separate women's plots (held by individuals or groups).

Men's rights to trees on land held by women are illustrated in Figure 1(c). McLain has described this case for women in Mali who have borrowed land to cultivate (1992). Even where women have a longer-term interest in the land, however, men may exercise rights of disposal to the trees found there. This is especially true of timber species which help men meet their responsibilities for house building, or their interests in earning cash. Schroeder has described how men landowners used environmental rehabilitation projects to plant trees in the midst of women's gardens, taking advantage of women's labor to maintain fences and to water trees, as well as capturing the wells previously installed for women's projects (1993). He also points out how this right jeopardizes women's management of their gardens, as the trees eventually shade out the vegetables below. Under these conditions, project planners could best help women by promoting resources which still fall under the control of women, such as nontimber, noncommercial fruit tree species. Alternatively, women's commercial trees may be linked to vertically integrated processing and marketing operations under the control of women, assuming that local social and political institutions would support or at least tolerate such an initiative.

5. GENDERED PRODUCTS OF A GIVEN RESOURCE

As we telescope further into the features of the landscape, we find examples of specific products over which women may have control, despite their association with both resources and land under men's control. Figure 2(a) is an example where a woman has access to fruits found on a tree which she has cared for, even though it is "owned" by her husband and the tree is found on her husband's private land. Researchers have described such a case from Siaya District, Kenya, based on gendered tree

use described by participants in a CARE KENYA Agroforestry Project (Feldstein *et al.*, 1989). Again, it is not a matter of a husband simply giving the fruit to his wife; she has rights of collection and use recognized by other users, including her husband. In another case from Siaya, women said that they would refuse to cook for a man who refused to allow them to collect fuelwood from compound and woodlot trees, and were supported by the male village elders in their assertion (Feldstein *et al.*, 1989). Yet, in many parts of Siaya women are restricted from harvesting fuelwood from Albizia and Markhamia trees. These trees are used for building, considered a "higher use" and necessary for men's responsibilities. Women do have ready access to many other less valuable species. In nearby Kakamega District, women's fuelwood harvest may be limited to purchase of whole trees from men in other households or to periodic harvest of fuelwood as a by-product from their husbands' harvest of Eucalyptus trees for timber.

Figure 2(b) illustrates a case where resources controlled by men on common land provide women with specific products. Women often hold recognized rights to the branches which are left after men cut trees for poles or timber in community forests (Hoskins, 1982). Recognizing and reinforcing these nonconsumptive gathering rights, both in the evaluation of the costs and benefits of any proposed change in land use and in the formation of public policy, would lend significant support to women's efforts to maintain and expand their access to vital tree, forest and bushland resources.

6. GENDERED ACCESS BY TIME

Women's access to and control over spaces, resources and products can vary significantly over time depending on changes in a host of ecological and social factors, and the manner in which these changes are negotiated among men and women. In Sierra Leone the management of a single space is the responsibility of men during periods of groundnut cultivation and of women during "fallow" periods, as described by Leach (1992). A more strictly seasonal shift occurs among the Turkana, where *ekwars* (riparian forest patches) that are managed more closely by men for cattle fodder during the dry season are more readily given over to women's control during the wet season for sorghum cultivation, goat fodder, and fuelwood sales (Barrow, 1992).

Customary resource tenure is often sensitive to less predictable periodic changes in ecological conditions. In some parts of Machakos District, Kenya, access to fodder resources on private land is tightly controlled in years when other fodder sources

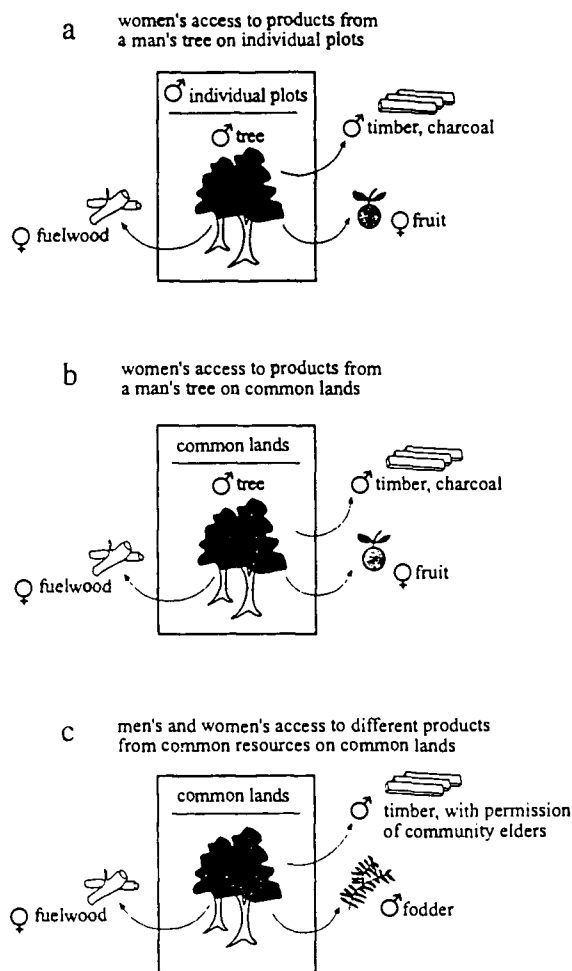


Figure 2. Gendered and shared access to particular products from specific resources.

are abundant, but may be opened up to neighbors, friends and extended family when famine has struck the area, as in 1985 (Rocheleau, 1991). Women's *de facto* access to resources may also improve during periods of high male outmigration, as has occurred in areas where seasonal work on plantations is available. Perhaps the best way to protect women's rights in fluid ecological and social conditions is to assure that they have a voice in a decision-making process which responds to such changing circumstances. This means involving women's organizations, church groups and other associations in which a diversity of women have a significant and influential presence in an ongoing process of developing, evaluating, restructuring and enforcing codes of conduct and, where appropriate, resource management contracts. If women's participation is limited to the initial phases of a particular intervention, men may respond to changing circumstances and the restructuring of activities without adequate negotiation with women (as a group) over resource rights. Resource management personnel can facilitate full

participation by women throughout the life of a forestry project or program, through a rigorous locally based review of the sharing and division of resources, addressing the separate and shared concerns of both men and women, and of class, ethnic, and age groups.

7. CASE STUDIES OF NESTED TENURE

The gendered tree tenure typology is an abstraction designed to illustrate some of the ways in which resource access can be gendered. Several types of gendered access however, can be at work at one time in any particular community. These different tenures are "nested" one within another. This should not be understood as an assumption of stability or complementarity; relationships among tenures depend on shifting ecological and social conditions which repeatedly force women and men to renegotiate their terms of access to specific resources. Nevertheless, some patterns may be discerned, and can

help us better understand the changing tenure regimes in these and other places.

Two case studies from Kenya illustrate the complexity of nested tenure. The first draws on field work in Siaya District in a relatively well-watered agricultural community with moderate population densities and significant woodland and aquatic resources. A second case in Machakos District represents an agricultural community in a drier region where woodlands vary from large expanses of degraded forest to small patches and linear remnants of diverse dry forest species in agrarian landscapes. While such a sample cannot represent the diverse tenure regimes in Kenya, let alone all of Africa, they are indicative of that diversity, and they alert us to the profusion of nested and overlapping tenure configurations in any given community.

(a) *Luo farming community in Siaya District, Kenya*

Pala-Okeyo (1980) documented women's loss of customary rights of land use and access in this region during the land tenure reforms (privatization) which took place from the 1950s to the 1970s. She described a system of resource allocation and management with women's resource use and access rights nested within common property controlled by the men's lineage. Women's rights were allocated to women as a group for use of the commons, and to individual women through their husbands. Their individual resources included some shared resources on the extended family homestead and their own individual cropland plots, suballocated by husbands to individual wives and subsequently to their sons and the wives of their sons.

During the 1980s the CARE Kenya Agroforestry Project explicitly aimed to address deforestation and fuelwood shortage issues in Siaya, as well as to contribute to crop and livestock production through tree products and tree services. The project sought not only to involve but to serve women farmers as constituents and as part of that effort the field staff collected information on the prevailing norms of land and tree tenure,⁷ long after the land tenure reform. The women and men who answered their questions noted that Luo custom did not allow women to plant trees, and that all trees would need to be planted by men and would subsequently belong to them. This rule was related to the recognition of tree planting as a mark of ownership. Moreover, they expected that men would make the species choices and determine the placement of the trees. The participants noted that shrubs (specifically *Sesbania sesban*) were women's property—to plant in cropland, manage, use and dispose of as they pleased—both among the neighboring Luhya people (Bradley, 1991) as well as among the Luo. Men and women

also expressed interest in different products from the tree project: men generally wanted poles, timber and fodder, while women more often wanted fuelwood and fodder. Both showed some interest in soil fertility improvement, a service already provided by the *Sesbania* planted by women in their croplands.

The prevailing gender division of land, trees, shrubs, crops, and their products at the start of the project in 1985 is illustrated in Figure 3. The gender division of rights, responsibilities and labor investment in land, plants and products is pictured for part of the holdings of a man who is head of a polygamous family unit, showing the main home compound, the head man's field and the first wife's field. The junior wife's field is not pictured. The insets of the first wife's field, trees, and products show not only a nested gender division of tenure but also substantial differences in tenure between species. The senior man owns the land as well as the trees and some would say, even the crops in the fields. Once the grain crops are harvested and stored they belong to women. Likewise, the citrus tree belongs to the senior man, but the fruits of the citrus tree belong to the first wife, who tends it, regardless of who planted it. The *Sesbania* shrubs belong to women.

The project team initially developed two strategies to address both the gendered livelihood interests and the gendered tenure situation. First, they defined tree nurseries as women's workplaces (an increasingly common practice in community tree projects in Kenya in 1985) and also selected tree species according to women's group preferences for products and species (almost without precedent nationally). Once women had chosen the species and raised the seedlings many of them went on to plant the trees themselves, breaking with longstanding local custom, and strengthening their investment in their farms. Of those who did not plant their own trees, most chose the placement and spacing (usually fencerows or hedgerows in croplands) and their husbands or sons planted the trees. In a few cases men chose the place and the planting arrangement of the seedlings from the women's nurseries. Second, the choice and representation of species also influenced the gender division of tree planting labor and subsequent tree rights. Project staff introduced the *Leucaena leucocephala* as a shrub in order to identify this fuelwood and fodder tree as a woman's plant, and they pruned seedlings of some other species to encourage branching and a bushy form, rather than straight tall growth form. The project also initially discouraged *Eucalyptus* in the nurseries and did not allow sale of seedlings, both of which curbed men's interest in the seedlings from the project nurseries. But after filling the demand on their own farms (50–200 trees each, adding up to millions of trees planted on the farms of the District) many women did wish to convert their

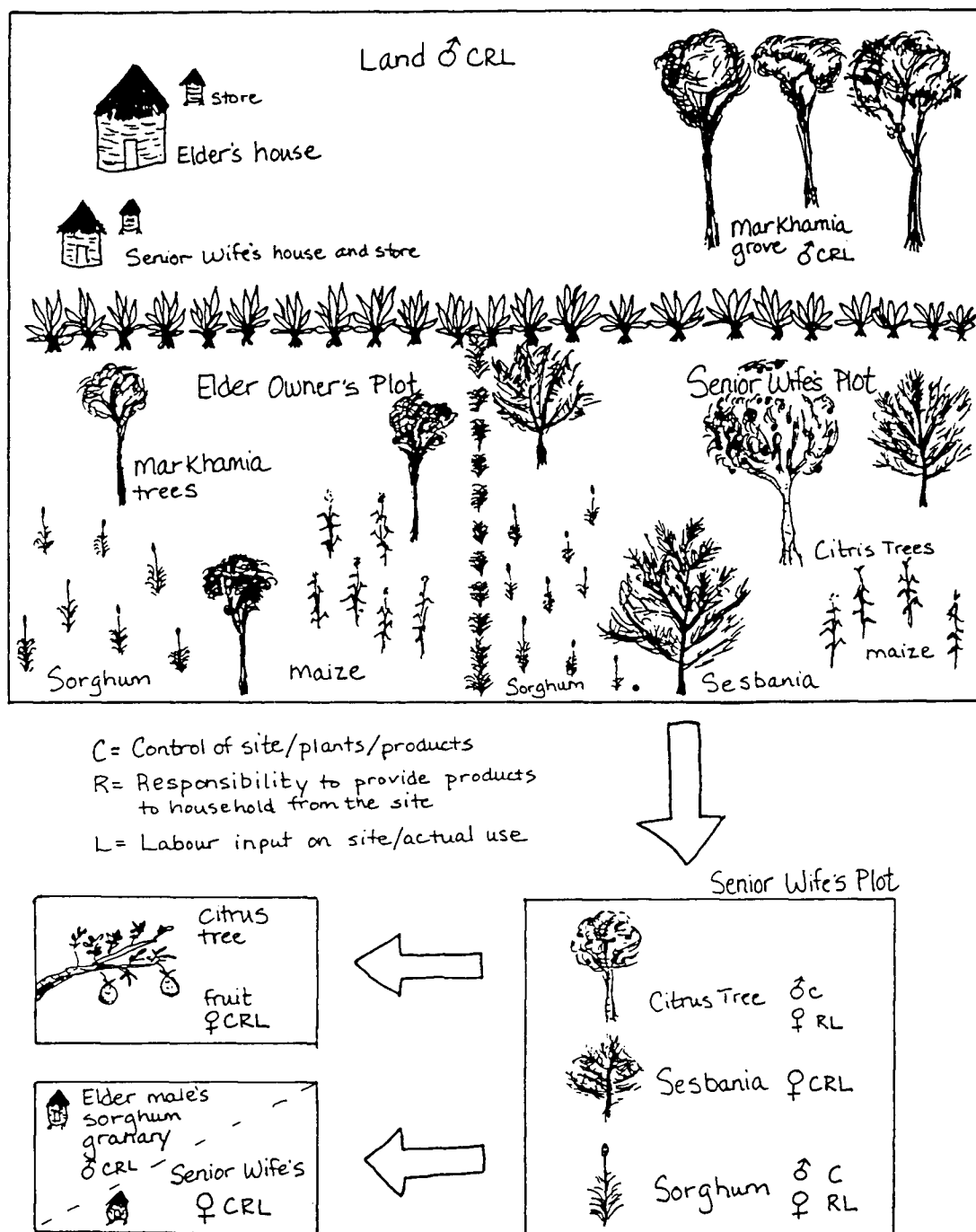


Figure 3. Farm household in Siaya District, Kenya.

nurseries to commercial production of timber tree seedlings for sale to men.

In this case tenure concerns rapidly shifted from control of trees on their own household lands to control of the women's group nurseries and the disposition of their seedlings as products. The project rules initially instituted to guarantee planting of

"women's trees" later obstructed their development of commercial nurseries. The experience in Siaya suggests that forestry and agroforestry projects may need to reevaluate even the most successful of tenure related practices and policies to adjust to changing conditions and different stages of project development (Scherr, 1988, 1990, 1994).

(b) *Akamba farming community in Machakos District*

According to some accounts the Akamba were originally hunters who came to what is now Machakos District, Kenya from south of Mt. Kilimanjaro (now Tanzania) in the 1500s (Lambert, 1947a, 1947b). The matrilineal society reorganized itself as a patrilineage with the establishment of the clans that persist to the present, and they began to keep large herds of cattle and to cultivate small intensive garden plots near their home corrals. Over the course of the last 100 years, under the impetus of European colonization, and later "national development" the Akamba people have been displaced from large tracts of their best farming and grazing land, then resettled and sedentarized as "producers" and "residents" and mobilized as paid labor. Throughout the region they have occupied since the 1500s (now comprised of Machakos, Makuweni, Kitui and Mwingi Districts) they have shifted (to varying degrees) away from seasonal and periodic migration and agropastoralism to sedentary mixed farming. They have also switched from patrilineal extended family settlements with both village and regional scale commons, to nuclear family compounds on private property. While the initial Colonial Government promotion of enclosure and privatization met with widespread resistance (beginning in the 1930s and 1940s), the lines of the surveyor's map have since traced the lines of a massive spatial and ecological re-structuring across the face of Ukambani (Bernard *et al.*, 1989).

The current gender division of land, trees and their products in Kathama, pictured below, reflects the reconciliation and continual negotiation between the ethos of customary practice at household and community level and the legal survey of private property completed (in this case) in 1972. While the more densely populated areas of the region have been surveyed as long ago as 1955, most of the semi-arid lands of Ukambani have yet to be formally surveyed. In anticipation of the arrival of the ongoing survey in their community, however, most Akamba farmers and local officials now operate within a framework of smallholder plots within a private property regime. The loss of the local commons, of multiple complementary plots and far-flung common grazing lands has substantially altered women's and men's practical access to food, fuel, fodder, fiber, and water resources.

Figures 4 and 5 "map" current gender divisions of labor investment and use, responsibility to manage, and control (legal or practical) over resources on household lands and nearby "bush." The latter are legally privately owned but conditionally treated as a commons at the discretion of the owner. Oral histories from this community suggest that an ethic

of flexible complementarity under uneven relations of power has prevailed for some time. The actual distribution of gendered labor, control and responsibility for specific resources, activities and products has changed constantly throughout the last century. The situation in the sketch (as of 1986) was one in which most adult men had migrated as wage laborers, leaving women as producers and managers in smallholdings owned and controlled by men.

Tree planting and tree felling have been primarily a men's domain, while women have enjoyed use and access rights to fodder (leaves and pods), fuelwood, fiber, fruits and mulch (leaves). The difference is one of consumptive versus renewable uses, and of rights to create, to place and to dispose of tree resources on farm, versus rights of use to an existing resource. At the level of landscape features, the gender division of rights to trees is (informally, practically) regulated by place (note shared rights in cropland, fencerows, and to some extent grazing land, and women's gardens and compound spaces versus men's woodlots). Gendered access is also determined by species (e.g., *Lantana Camara*, *Acacia Brevispica*, versus *Acacia tortilis* and *Commiphora* spp.), by exotic, planted trees such as *Eucalyptus*, *Neem*, *Cassia* and *Jacaranda* versus indigenous species such as *Combretum*, *Commiphora* and *Acacia* spp.), and by growth form (shrubs versus trees overall and shrubby regrowth of *Acacias*, versus large standing trees of the same species).

Product type also divides men's and women's domains: men's live versus women's dead wood, for example, or women's fruits, nuts, small wood, versus men's charcoal, logs, timber, large branches, poles. Gendered commodities and markets also influence control over different species and products: men's charcoal versus women's fuelwood; "mixed" control of citrus, papaya, mango, and commercial vegetables versus "traditional" women's crops such as cowpea leaves; men's wood carvings versus women's baskets and rope; men's livestock versus women's crops; men's goats versus women's chickens and eggs. In many cases women's products are gathered from men's trees, or women's plants are nested within men's landscape features, such as a fencerow. Women's products are often "by-products" or their plants occupy secondary spaces within places or landscape features with low opportunity cost for men's enterprises and plants.

As part of the Kathama Agroforestry Project during the 1980s the men of the community participated in a series of on-farm experiments with "alley cropping" (hedgerow intercropping of *Leucaena leucocephala* with maize). After an initial round of alley cropping trials to improve soil fertility and produce fuelwood (both women's concerns) women noted their disappointment with the mulch and fuelwood production compared to their former

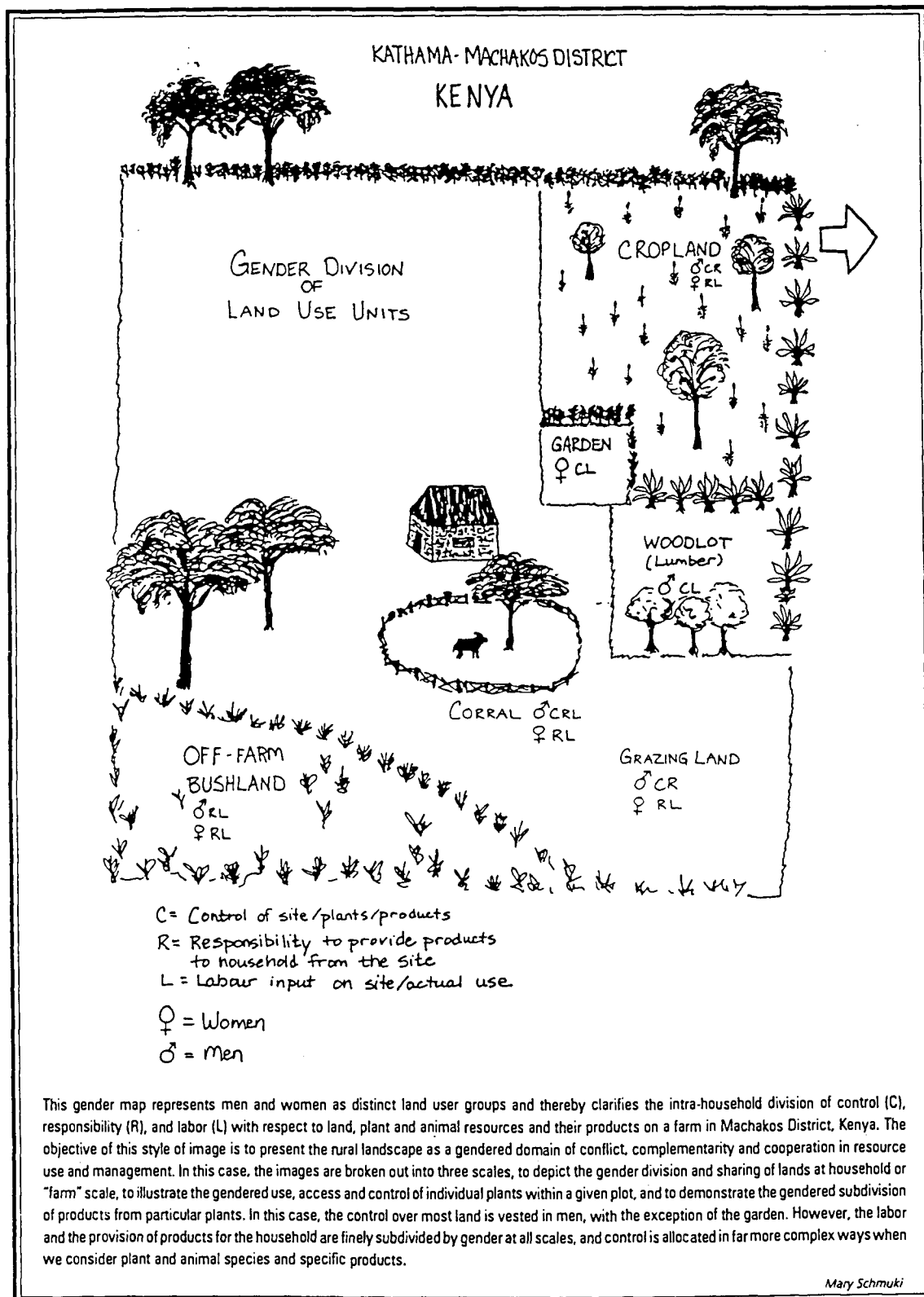


Figure 4. Kathama-Machakos District, Kenya. Reprinted with permission from Cultural Survival Quarterly.

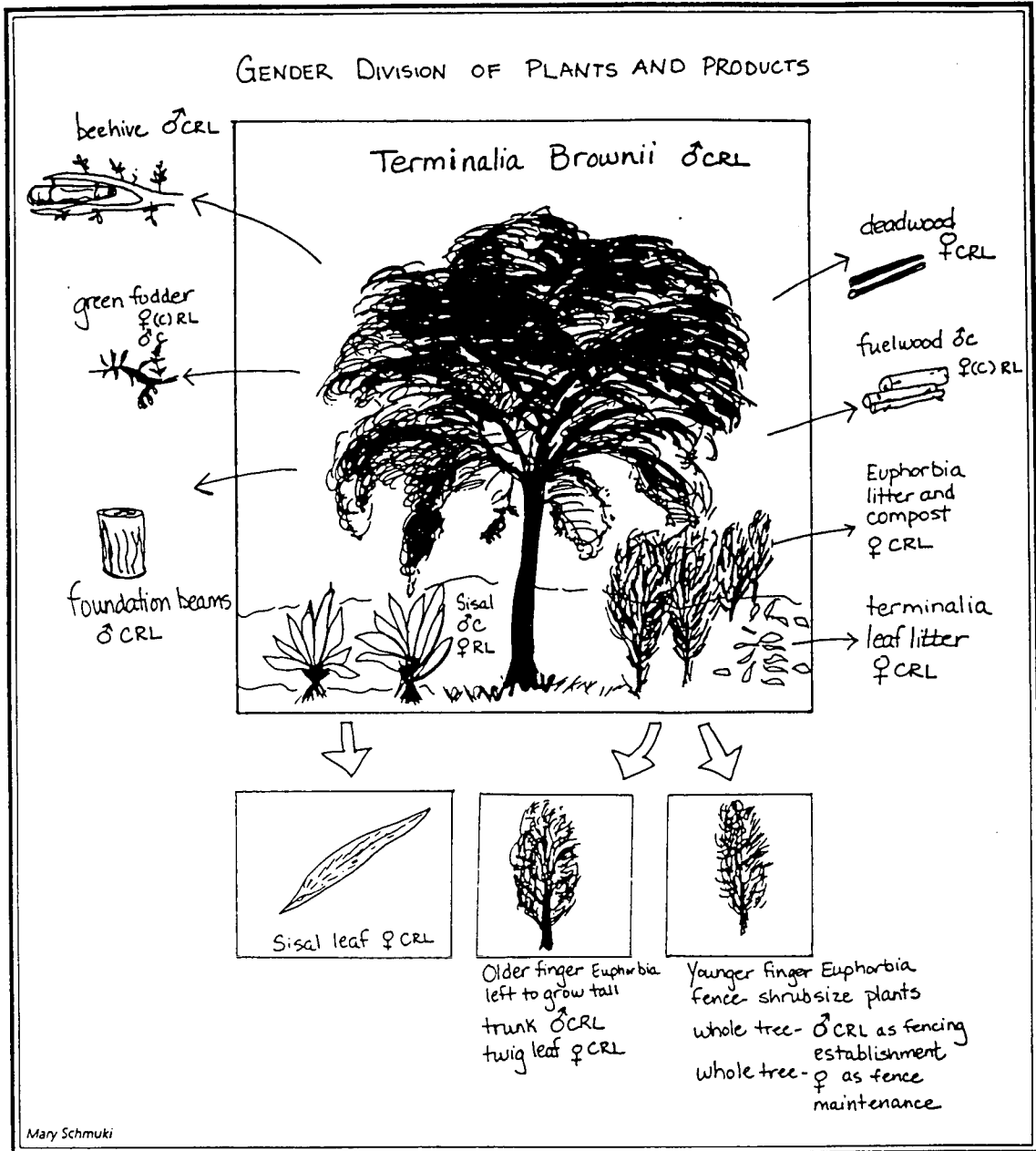


Figure 5. Gender division of plants and products. Reprinted with permission from Cultural Survival Quarterly.

sources of these products. Men noted a distinct interest in poles and fodder and often began to manage the hedgerows as rows of poles or as browse for their goats. Neither men nor women got what they wanted from the new technology, since the design had failed to incorporate gendered tenure relations and product streams on smallholder farms.

As part of a community-focused expansion of the project with women's groups, women in Kathama raised seedlings, primarily in women's group

nurseries, and they planted experimental, "emergent" gardens in spaces within the home compound or along the fence line or internal boundaries. Woodlots (for timber, fuel and fodder) were limited primarily to men or to women heads of household, or in some cases women farm managers with permission from absentee husbands. While many women have raised large numbers of papaya and other fruit seedlings in their group nurseries as well as trees for fuel, fodder and poles, the papaya has become a major cash crop

in the area and may soon fall under the control of men or of household heads and farm managers. As in the case of Siaya, noted by Scherr (1988, 1990) gender alone does not account for the division of control over trees and their products. However, we can safely say that gendered tenure relations and flexible complementarity under uneven relations of power are central to the distribution of power over plants and their products in this landscape. The choice of species, spacing and products and their marketing strategy under new agroforestry technologies will affect both the landscape and gender relations in this and similar communities. The challenge is to make that process conscious, fair and effective in social and ecological as well as economic terms.

8. CONCLUSION

Recent work on tenure has called our attention to the difference between legal and defacto rights and legal rights versus actual control of forest and tree resources, with lines of conflict, coexistence or cooperation drawn by class, gender, caste or other poles of identity and difference. Throughout the world women have been excluded from access to and control over a wide range of land, forest and tree resources and their products by interventions ranging from agrarian land tenure reform and contract farming to forest protection. We have reviewed several instances of gendered tenure changes related to trees, forests and land in Africa, with an emphasis on specific examples from Kenya. The tenure disadvantages for women however, may not be inherent in the interventions *per se*, but rather may reside in the intersection of local and outsider gender ideologies with each other and with a specific technology or land use change. The local gender ideology may be one of flexible complementarity under uneven relations of power, while outsider gender ideologies may project shared interests and fixed hierarchies of gender power under patriarchal structures (e.g., the globalized "Western" view), or, alternatively may be based in the liberal feminist corollary of gender equality without difference. The outcome of land use and technology changes may also be quite different under conditions of deforestation in forest land versus reforestation or afforestation of agrarian or pastoral landscapes. Likewise, legal changes in ownership may have very different effects on gender relations than a major change in land use and cover within a given place, whether it be a commons within an ancestral homeland or a household plot in a resettlement project.

In response to the complexity and diversity of existing land use systems, property regimes and gender division of labor and authority we suggest

that policy and technology design in forestry and agroforestry begin in each case with a set of questions about gender, trees and tenure. Rather than prescribe a fixed response to what is complex, variable and dynamic, we argue for careful attention to gender and class equity in process and procedures, in the definition of stakeholder groups and in the choice of institutions to represent various constituencies. This may mean working with several groups that represent people in nested and overlapping constituencies that reflect the multiple roles, identities and interests of men and women across class, location, occupation and other points of difference and affinity. We also strongly suggest "mapping" gendered resources as well as gender relations of power (Slocum *et al.*, 1995; Rocheleau *et al.*, 1995). The gendered power to plan, to design, to reconfigure, or to resist reconfiguration of the landscape and reassembly of plant communities is a major issue for the future.

Perhaps the most important challenge is to create the mechanisms for discussion, negotiation, and arbitration of gendered tenure regimes under a variety of circumstances. International and national agencies can help to define robust procedural rules for processes ranging from land adjudication to tree product sales. Agencies promoting forest technology and land use changes may also need to develop flexible legal instruments to formalize (or create) complex codes of multiple use which recognize, reconcile and perhaps reform gendered rights to use forests, trees, and their products. As in the case of land rights in South Asia described by Agarwal (1994), women's tree rights in many households within diverse communities may be best guaranteed (either maintained or expanded) through women's group ownership on behalf of individuals, whether as members of a collective or shareholders in a corporate enterprise with well-defined rules of membership, participation and distribution of resources and benefits. In other households and communities women's trees and forests may flourish under common, public or private property regimes, with or without separate places, plants and products allocated to women by customary or statutory law. Project contracts for production and sale of particular tree products can also serve as instruments to expand and/or maintain women's access to forests, trees and their products. In the last analysis, greater gender equality in tree tenure (including forests, trees, and their products) will depend on close attention to internal structures within planning and technical support agencies. It will also hinge on the innovative application of participatory methods for thorough discussion of the gender relations of power, their intersection with property regimes and the possible futures of both.

NOTES

1. Traditional is placed in quotes to connote the problematic nature of this word applied to practices which are not static, but rather evolving and subject to modification by negotiation between various land user groups and state institutions. The property regimes usually labeled "traditional," as opposed to modern, European statutory law, actually constitute complex outcomes of cultural and environmental change, and often incorporate elements of modern statutory law on private and public property regimes. This often occurs as an adaptation to land markets developed at national level or in anticipation of formal surveys and land adjudication. Many of the land use and tenure systems in place in Africa in the 1980s also reflected adaptation or transformation of pastoral and agropastoral practices to sedentary settlements and a shift toward agricultural production and wage labor.
2. These rules are sometimes interpreted with reference to officially recognized elders in court cases.
3. While this represents real progress for many young women and their children, it does not yet deal with divorced, abandoned or abused married women, who are deemed to have a place (albeit a troubled one) in the compound of their husband's family.
4. Such measures would not suffice, however, to secure full control over the land or other resources conferred by any given project, as ownership may not be sufficient for women to exercise control (See Agarwal, 1994; Wangari, 1991; Antwi-Nsiah, 1991), particularly for young single women still dependent in other ways on their fathers.
5. See Jackson's (1985) case study of the Kano Irrigation Scheme and the divergent fates of women from two ethnic groups under the same land use and tenure interventions.
6. "Field experience" refers to our limited, privileged, personal and professional sharing of someone else's home, habitat, community, workplace and marketplace.
7. Dianne Rocheleau worked with members of the CARE Kenya staff to develop field research and extension methods and participated in the initial round of group interviews and key informant interviews, including discussion of gendered tenure of land, trees and tree products.

REFERENCES

- Agarwal, B. (1994) Gender and command over property: A critical gap in economic analysis and policy in South Asia. *World Development* 22, 1455-1478.
- Agarwal, B. (1995) *A Field of One's Own: Gender and Property in South Asia*. Cambridge University Press, Cambridge.
- Antwi-Nsiah, C. (1991) Analysis of the problem of gender, class and regional inequalities in peripheral states: A case study of Ghana. Ph.D. Dissertation, University of Illinois, Champaign-Urbana.
- Arizpe, L., Paz, F. and Velasquez, M. (1993) *Cultura y Cambio Global: Percepciones Sociales Sobre la Deforestación en La Selva Lacandona*. Miguel Angel Porrúa, Mexico, D.F.
- Asamba, I. and Thomas-Slayter, B. (1995) From cattle to coffee: Transformation in Mbusyani and Kyavaluki. In *Gender, Environment and Development: A Grassroots Perspective*, eds. B. Thomas-Slayter and D. Rocheleau. Lynne Rienner, Boulder.
- Barrow, E. (1992) *Pastoralist Resource Management Systems in Kenya*. African Center for Technology Studies, Nairobi.
- Behnke, R. and Scoones, H. (1992) Rethinking range ecology: Implications for rangeland management in Africa. Drylands Network Programme, Issues Paper No. 33, IIED/ODI, London.
- Bernard, F., Campbell, D. and Thom, D. (1989) Carrying capacity of the eastern ecological gradient of Kenya. *National Geographic Research* 5, 381-406.
- Berry, S. (1993) *No Condition is Permanent*. University of Wisconsin Press, Madison.
- Berry, S. (1989) Social institutions and access to resources. *Africa* 59, 41-55.
- Bradley, P. (1991) *Woodfuel, Women and Woodlots*, Vol. 1. Macmillan, London.
- Bruce, J. (1989) *Rapid Appraisal for Resource Tenure Issues*. Food and Agriculture Organization, Rome.
- Bruce, J., Fortmann, L. and Nhira, C. (1993) Tenures in transition, tenures in conflict: Examples from the Zimbabwe social forest. *Rural Sociology* 58, 26-642.
- Campbell, C. (1996) Out on the front lines but still struggling for voice: Women in the rubber tappers' defense of the forest in Xapuri, Acre, Brazil. In *Feminist Political Ecology: Global Perspectives and Local Experiences*, eds. D. Rocheleau, B. Thomas-Slayter and E. Wangari. Routledge, London.
- Carney, J. (1988) Struggles over land and crops in an irrigated rice scheme: The Gambia. In *Agriculture, Women and Land*, ed. J. Davison. Westview Press, Boulder.
- Carney, J. (1992) Peasant women and economic transformation in the Gambia. *Development and Change* 23, 67-90.
- Carney, J. and Watts, M. (1990) Manufacturing dissent: Work, gender and the politics of meaning in a peasant society. *Africa* 60, 207-241.
- Chavangi, N. (1984) Cultural aspects of fuelwood procurement in Kakamega District. Kenya Woodfuel Development Project (KWDP) Working Paper No. 4. KWDP, Nairobi.
- Chimedza, R. (1988) Women's access to and control over land: The case of Zimbabwe. Working Paper AEE, 10/88. University of Zimbabwe, Harare.
- Croll, E. and Parkin, D. eds. (1992) *Bush Base: Forest Farm: Culture, Environment, and Development*. Routledge, New York.

- Davison, J. ed., (1988) *Agriculture, Women and Land*. Westview Press, Boulder.
- Edmunds, D. (1991) Forestry in Zaire. Report on the WWF/US mission to Zaire, October–December, 1990. WWF/US, Washington, DC.
- Edmunds, D. (1997) Continuity and change in the resource management institutions of communities bordering the Kibali Forest Park, Uganda. Clark University, Worcester, MA.
- Feldstein, H., Rocheleau, D. and Buck, L. (1989) Kenya: Agroforestry extension and research: A case study from Siaya district. In *Working Together: Gender Analysis in Agriculture*, eds. H. Feldstein and S. Poats, Vol. 1. Kumerian Press, West Hartford.
- Fortmann, L. (1985) The tree tenure factor in agroforestry with particular reference to Africa. *Agroforestry Systems* 2, 229–251.
- Fortmann, L. (1995) Talking claims: Discursive strategies in contesting property. *World Development* 23, 1053–1064.
- Fortmann, L. and Bruce, J. (1988) *Whose Trees? Proprietary Dimensions of Forestry*. Westview Press, Boulder.
- Fortmann, L. and Nabane, N. (1992) Fruits of their labors: Gender, property, and trees in Mhondoro district. Natural Resource Management Occasional Paper 7. Centre for Applied Social Sciences, University of Zimbabwe, Harare.
- Fortmann, L. and Rocheleau, D. (1985) Women and agroforestry: Four myths and three case studies. *Agroforestry Systems* 2, 253–272.
- Haraway, D. (1991) *Simians, Cyborgs and Women: The Reinvention of Nature*. Routledge, New York.
- Harding, S. (1991) *Whose Science? Whose Knowledge? Thinking from Women's Lives*. Cornell University Press, Ithaca.
- Hoskins, M. (1982) Social forestry in West Africa: Myths and realities. Paper presented at the annual meeting of the American Association for the Advancement of Science, Washington, DC.
- Jackson, C. (1985) *Kano River Project*. Kumarian Press, West Hartford.
- Jackson, C. (1993) Doing what comes naturally? Women and environment in development. *World Development* 21, 1947–1963.
- Jiggins, J. (1988) Problems of understanding and communications at the interface of knowledge systems. In *Gender Issues in Farming Systems Research and Extension*, eds. S. Poats, M. Schmink and A. Spring. Westview Press, Boulder.
- Lambert, H. E. (1947) Land tenure among the Akamba: Part I. *African Studies* 6, 131–147.
- Lambert, H. E. (1947) Land tenure among the Akamba: Part II. *African Studies* 6, 157–175.
- Lastarria-Cornhiel, S. (1995) Impact of privatization on gender and property rights in Africa. Paper prepared for the Gender and Property Rights International E-mail Conference. International Food Policy Research Institute, Washington DC, May–December.
- Leach, M. (1992) Women's crops in women's spaces: Gender relations in Mende rice farming. In *Bush Base Forest Farm: Culture, Environment, and Development*, eds. E. Croll and D. Parkin. Routledge, New York.
- Leach, M. (1994) *Rainforest Relations: Gender and Resource Use Among the Mende of Gola, Sierra Leone*. Smithsonian Institution Press, Washington, DC.
- McLain, R. (1992) *Recommendation for a New Malian Forest Code: Observations from the Land Tenure Center's Study of Land and Tree Tenure in Mali's Fifth Region*. Land Tenure Center: University of Wisconsin, University of Wisconsin Press, Madison.
- Mohanty, C. (1991) Under western eyes: Feminist scholarship and colonial discourses. In *Third World Women and the Politics of Feminism*, eds. C. Mohanty, A. Russo and L. Torres. Indiana University Press, Bloomington.
- Moore, D. (1993) Contesting terrain in Zimbabwe's eastern highlands: Political ecology, ethnography, and peasant resource struggles. *Economic Geography* 69, 380–401.
- Moore, H. (1988) *Feminism and Anthropology*. Polity Press, Cambridge.
- Okoth-Ogendo, H.W.O. (1991) *Tenants of the Crown: Evolution of Agrarian Law and Institutions in Kenya*. ACTS Press, Nairobi.
- Pala-Okeyo, A. (1980) Daughters of the lakes and rivers: Colonization and the land rights of Luo women. In *Women and Colonization: Anthropological Perspectives*, eds. M. Etienne and E. Leacock. Westview Press, Boulder.
- Palmer, I. (1985) *The Impact of Male Out-Migration on Women in Farming*. Kumarian Press, West Hartford.
- Peters, P. (1986) Inter- and intra-household dimensions of community livestock and water management in Botswana. In *Understanding Africa's Rural Households*, ed. J. L. Moock. Westview Press, Boulder.
- Peters, P. (1994) *Dividing the Commons: Politics, Policy, and Culture in Botswana*. University of Virginia Press, Charlottesville.
- Posey, D. (1985) Indigenous management of tropical forest ecosystems: The case of the Kayapo Indians of the Brazilian Amazon. *Agroforestry Systems* 3, 139–158.
- Riddell, J. (1987) Land tenure and agroforestry: A regional overview. In *Land, Trees, and Tenure: Proceedings of an International Workshop on Tenure Issues in Agroforestry, May 1985*, ed. J. B. Raintree. International Council for Research in Agroforestry, Nairobi and Land Tenure Center, University of Wisconsin, Madison.
- Rocheleau, D. (1988a) Women, trees and tenure: Implications for agroforestry. In *Whose Trees? Proprietary Dimensions of Forestry*, eds. L. Fortmann and J. Bruce. Westview Press, Boulder.
- Rocheleau, D. (1988b) Gender, resource management and the rural landscape: Implications for agroforestry and farming systems research. In *Gender Issues in Farming Systems Research and Extension*, eds. S. Poats, M. Schmink and A. Spring. Westview Press, Boulder.
- Rocheleau, D. (1991) Gender, ecology and the science of survival: Stories and lessons from Kenya. *Agriculture and Human Values* 8, 156–165.
- Rocheleau, D. (1995) Gender and biodiversity: A feminist political ecology perspective. *IDS Bulletin* 26, 9–16.
- Rocheleau, D. and Ross, L. (1995) Trees as tools, trees as text: Struggles over resources in Zambrana-Chacuey, Dominican Republic. *Antipode* 27, 407–428.
- Rocheleau, D., Schofield, K., Mbuthi, N. J. (1994b) People, property, poverty and parks: A story of men, women, water and trees at Pwani. In *Gender, Environment and Development in Kenya: A Grassroots Perspective*, eds.

- B. Thomas-Slayter and D. Rocheleau. Lynne Reiner. Boulder.
- Rocheleau, D., Steinberg, P. and Benjamin, P. (1994a) A hundred years of crisis? Environment and development narratives in Ukambani, Kenya. Working Papers in African Studies, No. 189. African Studies Center, Boston University, Boston.
- Rocheleau, D., Thomas-Slayter, B. and Wangari, E. eds. (1996) *Feminist Political Ecology: Global Perspectives and Local Experiences*. Routledge, London.
- Rocheleau, D., Thomas-Slayter, B. and Edmunds, D. (1995) Gendered resource mapping. *Cultural Survival Quarterly* 18, 62-68.
- Sarin, M. (1996) Case studies of gender, class and ethnic conflicts in joint forest management. Paper presented to the electronic conference on Conflict Resolution and Community Forestry, FAO Community Forestry Program, Rome.
- Sherr, C. (1988) Pilot survey of adopted agroforestry practices in the CARE Agroforestry Extension Project. ICRAF-CARE Project Report No. 6, ICRAF, Nairobi.
- Sherr, C. (1990) The diagnosis and design approach to agroforestry project planning and implementation: Examples from Western Kenya. Planning for Agroforestry, ed. William Budd, pp. 132-160. Elsevier, Amsterdam.
- Scherr, S. (1994) Agroforestry. *National Geographic Research and Exploration* 10, 144-157.
- Schroeder, R. (1993) Shady practices: Gender and the political ecology of resource stabilization in Gambian garden/orchards. *Economic Geography* 69(4), 349-365.
- Scott, J. (1976) *The Moral Economy of the Peasant*. Yale University Press, New Haven.
- Slocum, R., Wichart, L., Rocheleau, D. and Thomas-Slayter, B., eds. (1995) *Power, Process and Participation: Tools for Change*. Intermediate Technology Press, London.
- Talle, A. (1988) *Women at a Loss: Changes in Maasai Pastoralism and Their Effects on Gender Relations*. University of Stockholm Press, Stockholm.
- Thomas-Slayter, B. (1992) Implementing effective local management of natural resources: New roles for NGO's in Africa. *Human Organization* 61, 136-143.
- Thomas-Slayter, B. and Rocheleau, D. (1995a) *Gender, Environment and Development in Kenya: A Grassroots Perspective*. Lynne Reiner, Boulder.
- Thomas-Slayter, B. and Rocheleau, D. (1995b) Research frontiers at the nexus of gender, environment, and development: Linking household, community, and ecosystem. In *The Women and Development Annual*, eds R.S. Gallin, A. Ferguson and J. Harper, 4, pp. 79-118.
- Tibaijuka, A. K. (1984) An economic analysis of smallholder banana-coffee farms in the Kagera region, Tanzania: Causes of decline in productivity and strategies for revitalization. PhD Dissertation, Swedish University of Agricultural Sciences.
- Wangari, E. (1991) Effects of land registration on small-scale farming in Kenya: The case of Mbeere in Embu district. PhD Dissertation, Department of Economics, The New School for Social Research.
- Watts, M. (1993) Development I: Power, knowledge, discursive practices. *Progress in Human Geography* 17(2), 252-272.
- Zwart, G. (1990) Women's issues in agriculture. Background paper for the World Bank and the Zimbabwe Agricultural Sector Mission. World Bank, Washington, DC.

3. Schroeder, R.A. and K. Suryanata, 1997. **Gender and Class Power in Agroforestry Systems: Case Studies from Indonesia and West Africa**. pp. 188-204. Excerpted from: Peet, R. and M. Watts, eds. *Liberation Ecologies: Environment, Development and Social Movements*. New York: Routledge. Reprinted with permission from International Thomson Publishing Services Limited.

9

GENDER AND CLASS POWER IN AGROFORESTRY SYSTEMS

Case studies from Indonesia
and West Africa

Richard A. Schroeder and Krisnawati Suryanata

[A]groforestry initiatives . . . have been sheltered in the discursive shade of trees as symbols of green goodness.

(Rocheleau and Ross 1995: 408)

Agroforestry systems are widely touted for their prodigious capacities. From a production standpoint, intercropping trees with underlying crops can fix nitrogen and improve nutrient cycling, enhance chemical and physical soil properties, add green manure, conserve moisture, and make generally efficient use of a range of limited yield factors. Similarly, from the standpoint of environmental stabilization, agroforestry systems may reduce erosion, provide alternate habitat for wildlife, and shelter a diverse range of plants; they are also sites where the critical knowledge systems of indigenous peoples are reproduced. In the context of 1990s environmentalism, an agroforestry approach that simultaneously boosts commodity production and contributes to stabilizing the underlying resource base is constructed as an unambiguous and unalloyed 'good' (Rocheleau and Ross 1995; cf. Schroeder 1995). Institutional actors in forestry and environmental agencies, as well as the major multilateral donor agencies such as the World Bank, have accordingly joined forces to promote and preserve agroforestry in many parts of the world.

We recognize that, in addition to favorable production and environmental capacities, agroforestry approaches also sometimes open up critical options for otherwise disenfranchised groups. Rocheleau (1987) demonstrates quite clearly how women mobilize agroforestry strategies to make the best use of the minimal landholdings allotted to them (cf. Leach 1994). Other authors have argued eloquently for the rights of indigenous peoples to perpetuate their livelihoods in agroforestry systems (Clay 1988). And Dove (1990) suggests that the diversity and complexity of so-called 'home garden' agroforestry systems, which incorporate a wide range of cultivars with high use-value but low exchange-value, provide peasant groups with the means effectively to resist the extractive propensities of the state.

This chapter challenges the assumption that environmentalist policies and development practices related to agroforestry are universally beneficial to local interests. Instead we seek to redirect attention to agroforestry as a site of contentious political struggle. Farmers often view trees and forests as "tenure liabilities," particularly when the state has criminalized their removal: "As long as trees [are] not-agriculture, not legally available for harvest and sale, and forests [are] unimproved lands of untouchable resources" (Rocheleau and Ross 1995; cf. Peluso 1992), they remain impediments to livelihood and effective resource control, and are resisted. In sharp contrast, proponents of agroforestry stress that trees are assets which not only enhance the value and quality of land resources, but vary the scope and seasonality of income streams and thus the viability of the economic units engaged in agroforestry production. The problem with this idealized view of agroforestry is that it minimizes the internal workings of property and labor claims, despite ample evidence that these are pivotal to successful management (Fortmann and Bruce 1988; Raintree 1987). By their very nature as spatially enclosed systems, agroforestries often encapsulate the social conflicts that permeate societies. This is especially the case in successional systems such as the British colonial invention, the *taungya* system, where one species, and hence one set of property claims, supersedes all others as the system matures (Bryant 1994; Goswami 1988; King 1988; Peluso 1992). Where agroforestry approaches are commercialized, they tend to extend and rigidify (Millon 1957; Raintree 1987) the tenurial rights of tree growers *vis-à-vis* competing resource users, such as cultivators of underlying crops, forest product collectors, and pastoralists. With such social and technical dynamics embedded in combinations of tree and understorey crops, the design and implementation of agroforestry systems, and especially the actions of tree holders, must be carefully analyzed.

At the minimum, there is a need to move beyond technocratic and managerial classification systems (Farrell 1987; Nair 1989, 1990) and distinguish between agroforestries on political-economic grounds. Systems such as those described by Dove, Clay, Rocheleau, and others as embodying culturally diverse knowledge systems and practices are fundamentally different in scope and purpose than contemporary strategies pressed into being by economic, forest management, and (more recently) environmental developers bent on merging environmental and commodity production objectives. There is, in other words, a striking contrast between systems that actually accentuate and preserve a diversity of species, uses, and claims, and those that practically narrow the range of options within each of these parameters.

This chapter looks at two contemporary agroforestry initiatives in Gambia and upland Java which illustrate problems of ignoring the social and political dimensions of agroforestry. Both systems involve the production of tree commodities. Both have been hailed as bold steps toward environmental stabilization: in Gambia, toward reversing the cumulative effects of drought and deforestation; in Indonesia, toward stabilizing slopes in order to reduce the silting up of reservoirs.

In both cases, an environmental discourse has served to mask the exclusionary objectives of fruit tree holders – male mango growers in Gambia, and a new class of ‘apple lords’ in Java – which are ultimately directed at entrepreneurial gain and control over key production resources. Our argument is that, while these agro-foresters often contribute in some measure to ecological goals, they nonetheless can also be seen as deliberate strategies of dispossession and private accumulation. The commoditization of tree cropping has driven a wedge between holders of tree and land/crop rights, and this polarization has in turn produced a range of agro-ecological and social contradictions. Such dynamics grow directly out of a more general “commercialization-cum-stabilization” ethos (Schroeder 1995) – the “market triumphalism” identified by Peet and Watts (Chapter 1 in this volume) – which erodes moral economies and replaces them with a morally indifferent (not to say bankrupt) stance which elevates profit taking above all other objectives, *including* ecological stability.

GENDERED AGROFORESTRY IN GAMBIAN GARDEN/ORCHARDS

Rights over resources such as land or crops are inseparable from, indeed are isomorphic with, rights over people . . .

(Watts 1992: 161)

Since the mid-1980s, agroforestry efforts in Gambia have primarily been focused on adding trees to hundreds of low-lying women’s gardens originally established under the guise of “women in development” initiatives. A veritable boom in market gardening by women’s groups grew out of a conjuncture of poor climatic conditions, foreign investment in women’s programs, and numerous unconscionable national budget reductions mandated by a World Bank structural adjustment program. Average annual rainfall along the river basin has declined approximately 25–30 percent over a twenty-year period. During that time, the respective fortunes of the male and female agricultural sectors have reversed: hundreds of thousands of dollars have been invested in the women’s garden sector by donors interested in promoting better nutrition and an increase in female incomes, while prices for male peanut producers (gardeners’ husbands) have stagnated on the world market (Carney, Chapter 8 in this volume; Schroeder 1993). Despite the fact that women’s gardens have become the basis for household reproduction in many areas, they have since come under threat from male landholders interested in planting fruit orchards in the same locations.

Customary land law among the Mandinka residents of Gambia’s North Bank Division, where research for this chapter was conducted in 1991, preserves a basic distinction between matrilineal and patrilineal land. Women’s landholding rights are almost exclusively limited to swampland, where plots originally cleared by women are heritable property passing from mother to daughter. Patrilineal land, by contrast, consists both of upland areas, where men control virtually all arable land and grow groundnuts, millet, and maize, and some swampland,

where rice is grown by female family members for joint household consumption. Such land is nominally controlled by men who are relatively senior in the lineage structure, although practical day-to-day production decisions are often taken by junior kin who are either delegated responsibility for cultivation or are granted use rights to plots prior to acceding to full landholding status as they grow older. Women's gardens, ranging in size from a fraction of a hectare to nearly 5 hectares, are almost all constructed on lineage land. Rights of access are granted on a usufruct basis to groups, although individual women operate separate plots within the communally fenced perimeters. The gardens are thus vulnerable to being reclaimed by landholders interested in planting tree crops. According to Mandinka custom, trees belong to those who plant them. Under circumstances such as the gardens in question, where the tree planter is also the landholder, the tree crop takes precedence over other forms of cultivation. (Tree crops may take precedence even in systems where the tree planter is *not* the landholder, as in the Javanese case outlined below.)

On the face of it, this situation appears clear cut: two groups of commodity producers vie for control of the same land and labor resources, as well as the development largesse generated through their respective production systems. Neither group has total power over the garden/orchard spaces (Schroeder, forthcoming): gardeners are dependent upon usufruct rights to land controlled by senior male members of landholding lineages, and would-be orchard owners are dependent upon the labor of women's groups, not just for irrigation, but for maintenance of fences and wells, clearing brush from garden/orchard plots, and protection from livestock incursions. The potential for conflict between gardeners and landholders is thus manifest in every production decision taken within the fence perimeters which bound the system (Schroeder, forthcoming). Each relocation of the fence line, each tree planted, each year's planting sequence and plot layout can be read as a strategic and spatial embodiment of power.

Conjugal conflict and intensified land use

Work in the horticulture sector has generated incomes for women gardeners that are roughly equivalent to the rural per capita income in Gambia (Schroeder 1993), and female household members have consequently taken on major new financial responsibilities. Of the women in the sample, 57 percent had purchased at least one bag of rice in 1991 to supplement home-grown food supplies; 95 percent buy all their own clothes, 84 percent buy all their children's clothes, and 80 percent had purchased Islamic feast day clothes for at least one member of their family – all responsibilities borne either solely or primarily by men prior to the garden boom. While all cash earned from vegetable sales is nominally controlled by women, growers' husbands have, nonetheless, devised a complex system of tactics for alienating female earnings, or otherwise directing them toward ends of their own choosing (Schroeder 1994). These include a range of loan-seeking strategies, each carrying its own measure of commitment to

repayment, and its own underlying threat of reprisal if the loan is not forthcoming. Gardeners' husbands also increasingly default on customary financial obligations they feel their wives can assume due to improved financial circumstances (Schroeder 1994). The key point here is that the social pressure for women to share garden incomes with other family members mounted steadily throughout the early stages of the garden boom, and vegetable growers responded by both expanding and intensifying production.

Attempts to resolve *intra-household* tensions often displace the conflict to the spatial arena of the garden perimeters. The technical innovations accompanying the garden boom included replacement of poor quality stick and thorn fences and hand-dug, unlined wells serving individual plots with communal wire and concrete structures that do not have to be replaced on an annual basis. These enhancements reduced prohibitive recurrent expenses, removed some of the threat of encroachment by grazing livestock, and improved access to groundwater. While these improvements stabilized the vegetable production system in several key respects, the narrow selection of crops cultivated and relatively poor market returns meant that gardeners were unable to adequately meet their husbands' demands for greater financial support. Moreover, even as marginal increases were achieved, a strongly 'pulsed' income stream left women vulnerable to their husbands' loan requests. Growers consequently reverted to more complicated intercropping strategies that prolonged the market season and spread income over several months. Planting fruit trees and production of new crops such as cabbage, bitter tomatoes, and sweet peppers opened up sizable new markets and improved the seasonality of the income returns from gardens. The potential of these intercropping strategies could only be met with an expansion of garden territory, however. Requests to enclose new areas for gardening purposes and the *de facto* conversion of garden space into a more complex agroforestry system caused male landholders to re-evaluate the garden boom and its long-term effects. From the landholders' perspective, fruit production in the gardens threatened to confer a sense of *permanence* and *legitimacy* upon women's usufruct rights. Like the Javanese case below, the interests of tree holders and landholders began to diverge, with tree holders – in this instance, women gardeners – apparently holding the upper hand.

Shady practice

When an expatriate volunteer was posted in the area in 1983, local gardeners seized upon the opportunity to lobby for material support to expand two existing garden sites. Ensuing efforts to implement plans to rebuild and enlarge the community's two primary fenced perimeters were thwarted, however, when the landholder on one of the sites objected to the fact that his landholding prerogatives were being violated by the provisions of the proposed project. Increasing tensions eventually resulted in the detention of three garden leaders and a spontaneous protest demonstration on the part of several hundred gardeners, which resulted

in the issuing of a temporary injunction against gardening on the site. In the court's ruling, nearly all substantive claims by the vegetable growers were upheld. The sole exception involved allegations made by the landholder that the women had planted dozens of fruit trees within the perimeter without authorization. His insistence that they be removed won the court's backing, and women were ordered to remove all trees at his request. Within a day or two of the decision, the landholder visited the garden and ordered several dozen trees removed. Then, in an action that foreshadowed much of what was to come in the north bank's garden districts, he immediately replanted several dozen of his own trees within the perimeter. By locating seedlings directly on top of garden beds already allocated to vegetable growers, his expectation was that water delivered by growers to the vegetable crop would support his trees until the ensuing rainy season (a sort of indirect subsidy).

This controversy marked a watershed in the political ecology of gardening on the north bank. Not only were several hundred women involved in the demonstration at the police station, but the case also received attention from politicians at the highest levels of government. Every step taken by the landlord and every aspect of the women's claims to use rights were carefully scrutinized and debated throughout the area. This led other landholders to reappraise their own stance with respect to their management of low-lying land resources. Most telling, it set a precedent for landholders in the attempted use of female labor to establish private fruit tree orchards.

Within a few years of this incident, both gardeners' and landholders' attitudes toward agroforestry practices had changed. From the gardeners' perspective, the relative economic benefits of tree planting and vegetable growing shifted decisively in favor of gardens. As the leader of one of the oldest garden groups in the area put it: "We are afraid of trees now. . . . You can have one [vegetables or fruit] or you can have the other, but you can't have both." Thus, in order to minimize shade effects, growers began cutting back or chopping down trees – in many cases, trees which they themselves had planted – in order to open up the shade canopy and expose their vegetable crops to sunlight. At the same time, landholders saw a new opportunity developing for themselves. Whereas they had initially resisted tree planting on the grounds that it reduced their future land-use options, the "capturing" of a female labor force to water trees, manure plots, and guard against livestock incursions within the fenced perimeters led landholders to wholeheartedly embrace fruit growing.

In 1983, a new garden site was established immediately adjacent to an older site where gardeners had already begun to feel the effects of shade canopy closure. Given the land pressure at the time, many women from the older site took second plots in the new site. Under what was then still a somewhat novel arrangement, the garden was converted into a garden/orchard, with a dense stand of trees in a grid pattern over the entire area. The understanding was that ownership of the trees would be divided between the landholder and gardeners on an alternating basis; every other tree, in effect, belonged to the landholder.

Within five or six years, however, the prospect of shade canopy closure appeared in the new garden. Gardeners had already determined that vegetables brought them a greater return than any harvest they could expect from their trees. Consequently, many of the maturing trees were either drastically trimmed or simply removed, including, apparently, many of the trees belonging to the landholder. In response, the landholder banned tree trimming in his garden, only to find his young trees still being destroyed as women burned crop residues to clear plots for each new planting season. While some of this destruction was doubtless accidental, the landholder claimed that growers deliberately hung dry grass in tree branches so that fires set to clear plots would fatally damage trees. A survey of tree density on the site revealed that fully half of the original orchard no longer exists, so it is clear that vegetable growers were at least partially successful in defending their use rights.

By 1991, the situation regarding garden/orchard tenure was somewhat uncertain. Survey data from a dozen gardens show clear trends toward tighter control of garden spaces by orchard entrepreneurs, and a major emphasis within orchards on mango trees – the species most likely to cause shade problems for gardeners sharing the space. Landholders opening new gardens in the late 1980s tended to do so only under the strict conditions that women agree in advance to water the landholder's tree seedlings and vacate their temporary use rights when the trees matured. Of the twelve sites surveyed, only three remained solely under gardeners' control. All others had either already been, or were about to be, planted over with tree crops. Some 60 percent of the prime low-lying land in the vicinity of the communities surveyed was thus at risk of being lost to shade within the decade. At the same time, at the end of the 1991 rainy season, gardeners chopped and burned their plots clear almost at will in nearly all of the surveyed sites. This would suggest that, tougher rhetoric and recent clamp-down notwithstanding, the struggle to claim control over garden land in the area is ongoing.

In sum, this brief comparison of the north bank's garden/orchards establishes that trees can be used as a means for claiming both material and symbolic control over garden lands. Tree planting on garden beds, moreover, is a mechanism for landholders to alienate surplus female labor and subsidies embodied in concrete-lined wells and permanent wire fences. In this respect, the Gambian case differs from the apple-based agroforestry system in Java described below, where landholders often lack the capital to build the infrastructure necessary to convert their lands to orchards. At the same time, shade effects from tree planting threaten to undermine the productivity of gardeners, who now play key roles in providing for the subsistence needs of their families.

On balance, the agroforestry system practised by women gardeners seems of greater value than the successional systems landholders have imposed. Viewed from a production standpoint, garden-based agroforestry practised by women appears to generate a greater absolute income than a monocrop mango system, as well as a more seasonally varied income stream, one better suited to meeting

the myriad financial challenges rural families face throughout the year. From an environmental standpoint, since the orchards in the successional schemes are small, they have little impact on climate change and deforestation problems they were ostensibly intended to address. On the micro-scale, the women's systems are clearly more diverse than the men's. Soil quality is typically better, by dint of the incorporation of countless headpan-loads of compound sweepings and manure. Moreover, the evidence shows that, given the chance, gardeners routinely incorporate fruit trees into their crop mix, and that they effectively manage the ecological competition between vegetables and trees implied by intercropping, *if* they actually control decisions over the selection of species, the location of trees, and rights of trimming or removal, which is to say, the substance of the labor process and property rights. Such social relations are precisely what is overlooked in theories of agroforestry that construct all forms of tree planting in the same terms, namely as beneficial interventions with unambiguous stabilizing effects on local environments.

AGROFORESTRY AND CLASS RELATIONS IN A JAVANESE VILLAGE

Conventional wisdom suggests that upland Java faces an imminent ecological crisis under increasing population pressure. Poor, subsistence households seek to increase their immediate income by using cropping patterns that accelerate soil erosion from their rain-fed farms (USAID and Government of Java 1983). Rainfall intensities are extremely high in Java, contributing to severe soil erosion (Carson 1989). One survey in the mid-1980s estimated that 2 million hectares, or one-third of Java's cultivated uplands were severely degraded, and that the problem was increasing at a rate of 75,000 hectares annually (Tarrant *et al.* 1987).

Since the early 1980s, however, dramatic economic and land-use changes have occurred in many upland villages in Java. As urban incomes have risen, improving the market for fresh fruit, upland farmers have expanded cultivation of commercial fruit trees. A Jakarta-based newspaper reported that throughout the 1980s, domestic demand for fruit increased at the rate of 6.5 percent per annum (*Pelita*, 1 Sept. 1991). Development planners concerned with stabilizing the environment of upland Java viewed this with optimism, as tree planting and agroforestry have always been associated with lower soil erosion rates.

Agroforestry has indeed been an essential component for upland development programs in Indonesia (Mackie 1988). Nonetheless, adoption of tree cropping in response to these programs was modest at best. Conversion of upland farming systems depended heavily on government subsidies (Huszar and Cochrane 1990; McCauley 1988), and farmers often reverted to old practices soon after a project ended. Soil erosion rates from Java's uplands remained high, much to the confusion of planners who failed to understand how peasant-based agroforestry programs could meet with so little success in a country famed in environmental circles for its home gardens.

Where the more narrowly constructed environmental initiatives failed to arrest erosion, however, a commercial 'fruit boom' had dramatic stabilizing effects. The following case study examines the development of apple-based agroforestry in Gubugklakah, a high mountain village in the upper watershed of the Brantas River in East Java. In much of this region, economic depression during the 1930s, followed by war in the 1940s, and subsequent disease outbreaks and soil fertility exhaustion (Hefner 1990), have caused widespread poverty and land degradation. Since the introduction of apples in the late 1970s, however, many farmers have adopted sophisticated soil conservation measures to support fruit production.

Unprotected sloping soils in this region erode at the rate of 2 cm per year, exposing and destroying roots within the lifetime of apple trees (Carson 1989). Construction of bench terraces is thus a prerequisite to apple farming, and small-holders and large growers alike have built terraces in the anticipation of growing apples. By the time apple seedlings are planted, the completion of backsloping terraces and closed ditches between terraces has accounted for roughly 1,000 person days of labor investment per hectare. During heavy rainfall, virtually all mud carried by water runoff collects in the ditches of each terrace bench. After the rain, farmers return the mud to the terraces, thus minimizing the loss of topsoil and fertilizers.

Apple-based farming has markedly changed the agronomic and conservation scene. Approximately three-quarters of the land in Gubugklakah has been converted into terraced apple orchards or apple-based agroforestry. Of the remaining lands, about half have already been terraced. Overall, close to 90 percent of lands in the village have been 'stabilized' in this manner within the last two decades. Government officers both at district and provincial levels, struggling in their efforts to reduce soil erosion from Java's upper watersheds, have applauded this development, and Gubugklakah has often been cited as a model of successful upland management practices (Carson 1989; KEPAS 1988).

Changing social relations of apple-based production

There is no landlord in Gubugklakah, but we have plenty of apple-lords. This is a good arrangement because nobody loses all means to make a living. A small farmer can still grow vegetables even when the trees on his land are leased-out.

(Former Village Head, 1991)

Temperate fruit fill a particular, albeit small, niche in the urban market of Indonesia, and apples are the most important temperate fruit crop in Indonesia. In 1980, the Indonesian government banned the imports of many categories of food, including most fresh fruits. As a result, domestically produced temperate fruit such as apples enjoyed a buoyant market. In the few areas suitable for growing apples, such as Gubugklakah, an economic boom followed. One of the

challenges in growing temperate fruit in the tropics is finding ways to prevent bud dormancy in the absence of variation in temperature and daylength. Intensive labor and chemical input is necessary before apple trees can bear fruit. Workers must defoliate and modify plant architecture to stimulate buds to flush. Cultivation of apple trees in the tropics also relies on the frequent application of heavy doses of pesticides and fungicides. With heavy inputs of labor and fertilizers, apple trees in Java can be harvested twice each year.

Apples are intercropped with underlying vegetable crops, including leeks, scallions, garlic, cabbages, and potatoes. Unlike Gambia, customary law in Java does not distinguish land tenure rights along gender lines. In 1991, 94 percent of the lands in Gubugklakah were owner operated, with an average holding of 0.53 hectare. A few large farms of more than 2 hectares belonged to the richest 6 percent, and they covered only about a quarter of lands in the village, which is fairly typical of the region (cf. Hefner 1990). While the seemingly egalitarian distribution pattern indicates that the most recent economic boom has not resulted in land accumulation by richer peasants, this finding belies the ongoing struggle, not over land, but over the utilization of space beneath the apple trees. Just as in Gambia, boom conditions produced tensions and competition between apple growers and vegetable gardeners.

Close to 80 percent of all landowning households have planted apple trees in their vegetable gardens. Tree planting did not cause intra-household tensions as in Gambia. Instead, conflicts developed along class lines, as apple trees were favored by capital-rich farmers. The high commercial value of apples has reinforced the separation of tree tenure from land tenure. Apple trees constitute a valuable asset with higher marketability than land itself, and are often exchanged independently of land. In times of emergency, rights over trees, especially mature trees at fruit-bearing stage, can quickly be liquidated to raise cash. Among less productive trees under three years old, 91 percent are owner operated, as compared to 69 percent among the more productive ones that are four years and older.

Tree transfers under such circumstances have contributed to a process of rapid economic differentiation without apparent land accumulation (Suryanata 1994). Despite the fact that the pattern of land distribution has remained relatively undisturbed, a new class of 'apple lords' has emerged as the village's dominant power. The richest 15 percent control only 50 percent of the land in the village, but 80 percent of the apple harvest. Similarly, although only 21 percent of the village's households were landless, 68 percent did not have any access to apple harvest. Despite the fact that the largest landholding was only 5 hectares, the largest apple farmer operated close to 15,000 trees growing on 20 hectares of land.

Mechanisms for the transfer of tree assets vary. Tree seedlings themselves are sometimes sold and transplanted, but the transfer of rights to trees *and* the space they occupy is more common. Although the land tenancy rate in this village was only 6 percent of all individual landholdings, close to 20 percent were operated

under some form of *tree* tenancy, and that figure appears to be growing. By transferring only the tree tenure, a landowner retains the rights to other uses of the land. A structural tension is nonetheless created between the two land management systems.

Two specific forms of tree transfer have emerged. The institution of tree sharecropping (*maro apel*) began about a decade ago in Gubugklakah, and is a modified form of a credit arrangement, once common among vegetable growers. Sharecroppers provide the capital, and in most cases, the labor and skills necessary for the cultivation of apple trees. Landowners provide the land but retain the rights to grow annual crops underneath the trees until it is prohibitively difficult to do so. The terms of tree sharecropping specify how profit from apple production is to be divided, and rules on other access to the land where the trees are standing. In contrast to vegetable sharecropping, the longevity of apple trees and their permanent tenure preclude terminating the contract at a season's notice, unless landowners compensate their tenants for the trees, a practical impossibility in most cases given their high value.

Tree leasing (*sewa apel*) is a post-boom phenomenon. As capital-rich apple growers began to acquire management skills and reduce production risks, they increasingly favored fixed-rent leasing. Persistent credit needs of smaller-scale owner-operators have accordingly created a rental market for apple trees. The typical arrangement involves capital-rich growers leasing apple trees from landowning, capital-poor peasants. Invariably, the reason for leasing out trees is a pressing need for cash, which may arise from crises or basic demands of household reproduction, such as the illness or death of a family member, children's education, and house building expenses. It may also arise from the desire to possess luxury goods such as motor vehicles which have become more common as the new prosperity has contributed toward changes in consumption patterns (cf. Lewis 1992). Most often, the need to lease out apple trees arises from the inability to maintain young trees that have absorbed investment capital, but not yet produced any return. Renting out the trees is the only option if a farmer does not want to lose the investment made thus far. If a farmer owns several fields, tree leasing of one plot may be a way to raise capital to finance the operation costs for another field. The rent is typically negotiated and payable in advance, albeit within the context of a renter's market. In most cases, the liquidity crisis puts the lessor in a disadvantaged position, resulting in a very low rent relative to the potential yield.

The duration of tree lease contract ranges from one harvest to as long as fifteen years (thirty harvests under a double crop regime). If a lessor needs extra cash before the contract expires, the lessor can choose to extend the contract in return for an agreed sum of money, or a share of the net profit of an agreed number of harvests. The lessor's bargaining position then, however, is far weaker than when the contract was first established. The lessee is in a position to negotiate a lower rent, impose more restrictions on growing field crops, or advance a permanent tenure claim to the trees. With the reduced amount of resources available to a

lessor household after it enters into the contract, the likelihood of needing further credit extensions before the lease term expires is fairly high. Of the twenty-nine cases of tree leasing in the study, more than half have renegotiated their contracts before the original terms expired, resulting in increased benefits for tree lessees. As one lessee in Gubugklakah put it in 1991:

In 1984 I rented 900 apple trees from my neighbor for twenty harvests. Five harvests into the lease, he wanted to borrow more money. In return he would stop growing vegetables on this land. I agreed to suspend the lease for one season, and share the net profit of the sixth harvest. Because of this adjustment, when the lease expires I gain the right to sharecrop the trees even though I did not plant them.

Agroforestry and labor control

After a long string of failures in stabilizing the environment in Java's sloping uplands, improved market incentives for tree products have presumably enhanced the adoption rate of tree planting. At the outset, apple-based agroforestry in Gubugklakah seemed to offer a sustainable and equitable solution to the problems of poverty and soil erosion that characterized the village twenty years ago. Indeed, the case appeared to counter arguments that link agricultural commoditization with environmental degradation (Blaikie 1985; Grossman 1981), insofar as apple cultivation provided incentives for land improvement and rehabilitation, while simultaneously bringing economic prosperity.

In sharp contrast to this vision, however, the new land-use system is neither environmentally sound nor equitable. Instead of developing into a system with a high biological diversity that requires low inputs, apple-based farming systems are increasingly simplified, and require extensive use of chemicals. While this system does play a role in reducing soil erosion, the reduction does not come from the vertically intermingled plant cover as in traditional home gardens; but from the heavy labor input for constructing and maintaining terraces.

As apple trees mature, spatial conflict and competition between apple trees and vegetables increases. Village surveys showed that in *owner*-operated fields, expanding canopies and intensive maintenance of apple trees do not rule out intercropping with vegetable crops. By contrast, in fields under tenancy contracts the ecological competition between vegetables and trees becomes more pronounced. Apple lords blame the traffic of disinterested landowner/vegetable growers for causing blemishes in apples that lower their market value. Meanwhile, the frequent trampling by apple workers uninterested in the undergrowth often damages vegetable crops. In such struggles, tree lessees invariably come out as winners. Their advantages are exercised either through formal terms in the contract extensions or through the reckless practices of apple workers that impose an environment hostile to the vegetable crop. As a result, just as in Gambia, many fields have effectively turned into monoculture apple orchards which deprive landowners of access to their own land.

The system's equity soon deteriorates as input costs are driven up by the increasing demand for a controlled environment. The spatial conflict peculiar to the configuration of apple-based agroforestry also serves as a means of labor control for the "apple lords." Labor need is highest during the first ten weeks of each season when the trees are defoliated, fertilized, and pruned. Competition for hiring wage laborers escalates during peak operations. Apple lords growing more than 1,000 trees secure laborers in dependent wage-labor relations akin to patron-client relationships. Patrons offer benefits that include loan provisions with low or no interest, access to fodder from patrons' fields, or year-round guarantees of employment. Under such terms, about 24 percent of the lessor/landowners also work as paid laborers for their tree lessees. These arrangements provide landowners with the opportunity to personally ensure that apple maintenance does not cause trampling damage to the vegetable crops. The landowner's residual rights are thus appropriated by the apple patron and *returned* to the landowner as part of a labor contract. Thus, while the new labor relation may partially mitigate the effect of lost control over trees, it does so only under terms which increase the dependency of landowners on their creditors/tree lessees, deepening the imbalance of power between them.

A combination of tenure multiplicity and intercrop dynamics unique to agroforestry have actually facilitated economic polarization in this village. Tree leasing in particular slowly dispossesses capital-poor landowners from any land-based production, as access to growing field crops is increasingly suppressed by the lessees. In addition, apple cultivation often pushes vegetable growers into dependent wage-labor relationships. Despite their formal landowning status, they have formed a new class of 'propertied labor' (cf. Watts 1994) as the original multi-purpose agroforestry system has given way to monoculture apple orchards, controlled by the richest few.

CONCLUSION

It is easy to invoke the environmental crisis and the poor people's energy crisis to open up new avenues for reductionist science and commodity production.

(Shiva 1988)

We argued in this chapter that agroforestry approaches are not always the unalloyed good they are sometimes made out to be. In practice, 'stabilization' efforts involving tree crops are often highly ambiguous. Our two case studies examined agroforestry practices premised on the commoditization of tree crops and the assumption that market incentives enhance the rate of tree planting (Murray 1984). Both cases, however, show the contradictions of efforts to stabilize the environment through the market as commoditization leads to shifting patterns of resource access and control. In each place, this process takes on different characteristics, producing different forms of social friction and

resistance depending on local social structure and institutions. In Gambia, gender conflict between husbands and wives has grown out of multiple tenure claims to patrilineal land which intensified with the commoditization of fruit trees. By contrast, the tree boom in upland Java was the cause of inter-*class* tenure conflict as commercialization polarized the village's peasantry. Both case studies illuminate the need to recognize basic political ecological considerations, such as identifying clearly on whose behalf stabilization efforts are undertaken, specifying who is in the position to define stability and determine when in fact it is achieved.

In the case of Gambia's garden boom, in each of the hundreds of garden perimeters springing up over the past two decades, the ecological and economic significance of wells, fences, soil improvements, and tree stands must be assessed in light of competing local, national, and international interests. Wells, fences, and soil improvements provide the necessary conditions for vegetable production and thus serve the needs of both vegetable growers and their families heavily dependent on vegetable incomes. But such improvements also tie female labor to a specific spatial domain, thereby stabilizing conditions which allow landholders to establish orchards. The addition of the tree crop, in turn, negates the value of the infrastructure for gardeners, effectively *d*estabilizing their productive base, and actually compounding problems within a broader political economic context by attracting the intervention of outside donors interested in claiming the land improvements as their own (Schroeder 1993). Similarly, Javanese farmers on the western slope of Mount Bromo have built elaborate terrace systems to stabilize their land resources and accommodate commercial apple-based farming. The presence of high-value apple trees, however, is conducive for the development of tree-leasing contracts and a gradual dispossession of land resources, and thereby helps capital-rich apple lords to establish and accumulate apple orchards. As a result, while the threat of soil erosion to downstream interests may have been reduced, the value of this 'stable' environment to the landowners themselves has been shrinking.

Viewed from a slightly broader perspective, the loan-seeking behavior of men on Gambia's north bank has forced their vegetable-growing wives to intensify horticultural production through expansion of fence enclosures and tree planting. Landholders – a select group of men who hold senior positions in family lineages – have finessed the issue of enclosure in a way that allows them to control women's labor and capture subsidies intended for the construction of garden infrastructure. Non-governmental donor agencies use landholders' leverage over vegetable growers to meet their own objectives of land stabilization via tree planting (Lawry 1988; Mann 1989; Norton-Staal 1991; Thoma 1989; Worldview International Foundation 1990). And the state and multilateral donors build on NGO successes to meet national goals in environmental stabilization, agricultural diversification, and full-scale economic readjustment (Agroprogress International 1990; Government of Gambia n.d., 1990; Thiesen *et al.* 1989; Thoma 1989; USAID 1991). This implies, quite simply, that

developers at all levels pin their hopes, indeed stake their very legitimacy in some cases, on the continued mobilization of unpaid female labor. Once again, Java offers a striking parallel. After decades of failure in promoting tree cropping by upland smallholders, district and provincial governments point to the recent growth of fruit-based agroforestry as an indicator of success in meeting the goals of environmental stabilization and economic development. Commercial agroforestry has become a model for upland development, and donor-assisted programs have funded new research and development efforts directed at fruit trees suitable for upland farming. At the national level, the government is interested in exploiting the growing international markets for tropical fruit and thereby increasing its non-traditional exports. As in Gambia, these various interests are premised on the development of a new class of 'fruit lords' who can mobilize the labor of capital-poor landowners to their own ends.

We contend on the basis of this evidence that there is a contradiction at the heart of commercial agroforestry undermining their effectiveness as strategies of resource stabilization. The strengths of agroforestry systems do not lie exclusively in the ways they enhance productivity or reverse degradation; they also rest in the opportunities afforded for sheltering a multiplicity of claims and uses. From a political ecological point of view, agroforestry systems are strongest when people can manage their resources independently, beyond the scope of powerful interests that often converge when commercial incentives increase the rigidity and exclusivity of claims.

REFERENCES

- Agroprogress International. 1990. *Project preparation consultancy for an integrated development programme [European Community] for the North Bank Division*. Bonn: Agroprogress International.
- Blaikie, P. 1985. *The Political Economy of Soil Erosion in Developing Countries*. London: Longman.
- Bryant, R. 1994. "The rise and fall of *taungya* forestry: social forestry in defence of the Empire," *The Ecologist* 24, 1: 21-6.
- Carson, B. 1989. "Soil conservation strategies for upland areas in Indonesia." East-West Center Environment and Policy Institute, Occasional Paper 9. Honolulu.
- Clay, J. 1988. *Indigenous Peoples and Tropical Forests: Models of Land Use and Management from Latin America*. Cambridge, MA: Cultural Survival Inc.
- Dove, M. 1990. "Socio-political aspects of home gardens in Java," *Journal of Southeast Asian Studies* 21, 1: 155-63.
- Farrell, J. 1987. "Agroforestry systems," in M. Altieri (ed.) *Agroecology: The Scientific Basis of Alternative Agriculture*. Boulder, CO: Westview Press.
- Fortmann, L. and J. Bruce (eds.). 1988. *Whose Trees? Proprietary Dimensions of Forestry*. Boulder, CO: Westview Press.
- Goswami, P. 1988. "Agro-forestry: practices and prospects as a combined land-use system," in L. Fortmann and J. Bruce (eds.) *Whose Trees? Proprietary Dimensions of Forestry*. Boulder, CO: Westview Press.
- Government of Gambia. 1990. *National Natural Resource Policy*. Banjul.
- . n.d. *Executive Summary. Programme for Sustained Development. Sectoral Strategies*. Banjul: Gambia Round Table Conference.

GENDER AND CLASS, INDONESIA/WEST AFRICA

- Grossman, L. 1981. "The cultural ecology of economic development," *Annals of the Association of American Geographers* 71, 2: 220-36.
- Hefner, R. 1990. *The Political Economy of Mountain Java*. Berkeley: University of California Press.
- Huszar, P. and H. Cochrane. 1990. "Subsidization of upland conservation in West Java: the Citanduy II Project," *Bulletin of Indonesian Economic Studies* 26, 2: 121-32.
- KEPAS. 1988. *Penelitian agroekosistem lahan kering Jawa Timur*. Bogor, Indonesia: KEPAS.
- King, K. 1988. "Agri-silviculture (*taungya* system): the law and the system," in L. Fortmann and J. Bruce (eds.) *Whose Trees? Proprietary Dimensions of Forestry*. Boulder, CO; Westview Press.
- Lawry, S. 1988. *Report on Land Tenure Center Mission to The Gambia*. Madison: University of Wisconsin Land Tenure Center.
- Leach, M. 1994. *Rainforest Relations: Gender and Resource Use among the Mende of Gola, Sierra Leone*. Washington, DC: Smithsonian Institution Press.
- Lewis, M. 1992. *Wagering the Land: Ritual, Capital and Environmental Degradation in the Cordillera of Northern Luzon, 1900-1986*. Berkeley: University of California Press.
- McCauley, D. 1988. *Citanduy Project completion report, annex V: Policy analysis*. USAID: Jakarta.
- Mackie, C. 1988. *Tree Cropping in Upland Farming Systems: An Agroecological Approach*. USAID/Indonesia, Upland Agriculture and Conservation Project.
- Mann, R. 1989. "Africa: the urgent need for tree-planting," Methodist Church Overseas Division, unpublished manuscript.
- Millon, R. 1957. "Trade, tree cultivation and the development of private property in land," *American Ethnologist* 57: 698-712.
- Murray, G. 1984. "The wood tree as a peasant cash crop: an anthropological strategy for the domestication of energy," in R. Charles and A. Foster (eds.) *Haiti Today and Tomorrow*. New York: University Press of America, pp. 141-60.
- Nair, P. 1989. *Agroforestry Systems in the Tropics*. Boston: Kluwer Academic Publications and ICRAF.
- 1990. "The prospects for agroforestry in the tropics." World Bank Technical Paper No. 131. Washington, DC: World Bank.
- Norton-Staal, S. 1991. *Women and Their Role in the Agriculture and Natural Resource Sector in The Gambia*. Banjul: USAID.
- Peluso, N. 1992. *Rich Forests, Poor People: Resource Control and Resistance in Java*. Berkeley: University of California Press.
- Raintree, J. (ed.). 1987. *Land, Trees and Tenure*. Nairobi, Kenya and Madison, WI: ICRAF and University of Wisconsin Land Tenure Center.
- Rocheleau, D. 1987. "Women, trees and tenure: implications for agroforestry research and development," in J. Raintree (ed.) *Land, Trees and Tenure*. Nairobi, Kenya and Madison, WI: ICRAF and University of Wisconsin Land Tenure Center, pp. 79-121.
- Rocheleau, D. and L. Ross. 1995. "Trees as tools, trees as text: struggles over resources in Zambrana Chacuey, Dominican Republic," *Antipode* 27, 4: 407-28.
- Schroeder, R. 1993. "Shady practice: gender and the political ecology of resource stabilization in Gambian garden/orchards," *Economic Geography* 69, 4: 349-65.
- 1994. "'Gone to their second husbands': marital metaphors and conjugal contracts in The Gambia's female garden sector," paper presented at the African Studies Association Annual Meeting, Toronto.
- 1995. "Contradictions along the commodity road to environmental stabilization: foresting Gambian gardens," *Antipode* 27, 4: 325-42.
- (forthcoming) "'Gone to their second husbands': marital metaphors and conjugal contracts in The Gambia's female garden sector," *Canadian Journal of African Studies*.

SCHROEDER AND SURYANATA

- Shiva, V. 1988. *Staying Alive: Women, Ecology and Development*. London: Zed Books.
- Suryanata, K. 1994. "Fruit trees under contract: tenure and land use change in upland Java," *World Development* 22, 10: 1567-78.
- Tarrant, J., E. Barbier, R. Greenberg, M. Higgins, S. Lintner, C. Mackie, L. Murphy and H. van Veldhuizen. 1987. *Natural Resources and Environmental Management in Indonesia: An Overview*. USAID: Jakarta.
- Thiesen, A., S. Jallow, J. Nittler and D. Philippon. 1989. "African food systems initiative," project document. Gambia: U.S. Peace Corps.
- Thoma, W. 1989. *Possibilities of Introducing Community Forestry in The Gambia, Pt. 1*. Gambia-German Forestry Project, Deutsche Gesellschaft for Technische Zusammenarbeit (GTZ). Feldkirchen, Germany: Deutsche Forstservice.
- USAID. 1991. *Agricultural and Natural Resource Program, Program Assistance Initial Proposal*. Banjul, Gambia.
- USAID and Government of Indonesia. 1983. *Composite Report of the Watershed Assessment Team*.
- Watts, M. 1992. "Idioms of land and labor: producing politics and rice in Senegambia," in T. Bassett and D. Crummey (eds.) *Land in African Agrarian Systems*. Madison: University of Wisconsin Press, pp. 157-93.
- 1994. "Life under contract: contract farming, agrarian restructuring, and flexible accumulation," in P. Little and M. Watts (eds.) *Living under Contract: Contract Farming and Agrarian Transformation in Sub-Saharan Africa*. Madison: University of Wisconsin Press, pp. 21-77.
- Worldview International Foundation. 1990. *WIF Newsletter* 3, 1: 4.

4. Schlager, E. and E. Ostrom, 1992. *Property Rights Regimes and Natural Resources: A Conceptual Analysis*. Land Economics 68(3):249-262. Reprinted by permission of the University of Wisconsin Press.

Property-Rights Regimes and Natural Resources: A Conceptual Analysis

Edella Schlager and Elinor Ostrom

ABSTRACT. *The term "common-property resource" is an example of a term repeatedly used to refer to property owned by a government or by no one. It is also used for property owned by a community of resource users. Such usage leads to confusion in scientific study and policy analysis. In this paper we develop a conceptual schema for arraying property-rights regimes that distinguishes among diverse bundles of rights ranging from authorized user, to claimant, to proprietor, and to owner. We apply this conceptual schema to analyze findings from a variety of empirical settings including the Maine lobster industry.*

I. INTRODUCTION

Political economists' understanding of property rights and the rules used to create and enforce property rights shape perceptions of resource degradation problems and the prescriptions recommended to solve such problems. Ambiguous terms blur analytical and prescriptive clarity. The term "common-property resource" is a glaring example of a term that is repeatedly used by political economists to refer to varying empirical situations including: (1) property owned by a government, (2) property owned by no one, and (3) property owned and defended by a community of resource users.¹ The term is also used to refer to any common-pool resource used by multiple individuals regardless of the type of property rights involved. The purpose of this paper is to develop a conceptual schema for arraying property-rights regimes that distinguishes among diverse bundles of rights that may be held by the users of a resource system. We define a property-rights schema ranging from authorized user, to claimant, to proprietor, and to owner. We do *not* find that "owners" are the only resource users who make long-term investments in the improvement of resource systems. Proprietors face incentives that are

frequently substantial enough to encourage similar long-term investments. Even claimants may manage use patterns to an extent not predicted by a simpler property-rights dichotomy. We apply this conceptual schema to analyze findings from a variety of empirical settings but focus in particular on the Maine lobster industry.

II. RULES, RIGHTS, AND PROPERTY REGIMES

As individuals conduct day-to-day activities and as they organize these activities, they engage in both operational and collective-choice levels of action (Kiser and

The authors are, respectively, assistant professor, School of Public Administration and Policy, University of Arizona; and co-director and Arthur F. Bentley Professor of Political Science, Indiana University, Bloomington.

This paper has benefited from the critical and helpful comments from many colleagues at Indiana University and elsewhere. In particular, we would like to thank William Blomquist, Ed Connerly, Louis De Alessi, David Feeny, Howard Frant, Roy Gardner, Larry Kiser, Ron Oakerson, Vincent Ostrom, Tai-Shuenn Yang, and two anonymous reviewers for this journal. The comments of participants at the "Political Economy of Customs and Culture: Informal Solutions to the Commons Problem" Conference, held at Bozeman, Montana, June 1991, were of particular help in our revision process. Financial support provided by the National Science Foundation (Grant No. SES-8921884) is gratefully acknowledged.

¹The confusion in the use of the term "common property" has been addressed frequently in the past (Ciriacy-Wantrup and Bishop 1975; Bromley 1982, 1986, 1989; Runge 1981) without much impact on its careless usage. Even scholars, who are meticulous theorists and observers of behavior related to natural resource systems, use the terms "open access" and "common property systems" interchangeably (see Johnson and Libecap 1982, 1005; for other examples, see Agnello and Donnelly 1975; Bell 1972; Christy 1975; Gordon 1954; Scott 1955; Scott and Christy 1965; Smith, Weber, and Wiesmeth 1991; Sinn 1988).

Ostrom 1982).² Operational activities are constrained and made predictable by operational-level rules regardless of the source of these rules. By the term "rules" we refer to generally agreed-upon and enforced prescriptions that require, forbid, or permit specific actions for more than a single individual (E. Ostrom 1986).³ Examples of operational rules are those used by fishers to specify the types of fishing equipment authorized or forbidden at particular locations within a fishing ground.

Operational rules are changed by collective-choice actions. Such actions are undertaken within a set of collective-choice rules that specify who may participate in changing operational rules and the level of agreement required for their change. Changing the types of fishing equipment authorized or forbidden at different locations within a resource is an example of a collective-choice action. The particular set of operational rules that are actually in use and enforced may have been devised in multiple arenas. Operational rules related to inshore fisheries are as apt to be devised in a local meeting place, even a tavern, as they are in a court, a legislature, or a governmental bureau.⁴

The terms "rights" and "rules" are frequently used interchangeably in referring to uses made of natural resources. Clarity in analysis is enhanced by recognizing that "rights" are the product of "rules" and thus not equivalent to rules. "Rights" refer to particular actions that are authorized (V. Ostrom 1976). "Rules" refer to the prescriptions that create authorizations. A property right is the authority to undertake particular actions related to a specific domain (Commons 1968). For every right an individual holds, rules exist that authorize or require particular actions in exercising that property right. In this paper we focus entirely on rights, but we need to stress from the beginning that all rights have complementary duties. To possess a right implies that someone else has a commensurate duty to observe this right (*ibid.*). Thus rules specify both rights and duties.

In regard to common-pool resources, the most relevant operational-level property

rights are "access" and "withdrawal" rights. These are defined as:

- Access: The right to enter a defined physical property.
- Withdrawal: The right to obtain the "products" of a resource (e.g., catch fish, appropriate water, etc.).⁵

If a group of fishers hold rights of access, they have the authority to enter a resource. Rules specify the requirements the fishers must meet in order to exercise this right. For instance, fishers may be required to reside in a specified jurisdiction and to purchase a license before entering a fishing ground. In addition, fishers, through a lottery, may be assigned particular fishing spots (Faris 1972; Martin 1973). The assignment of fishing spots is an operational-level

²A third level of action is also available and that is the constitutional level. Constitutional-choice actions entail devising collective-choice rules. In establishing an organization or changing the process by which operational rules are to be devised within an existing organization, individuals engage in constitutional-choice actions. Fishers creating a marketing cooperative is an example of a constitutional-choice action.

³A plan adopted by an individual for how that individual wishes to undertake future actions is better thought of as a "strategy" rather than as a "rule." The concept of "rule" relates to shared understandings about prescriptions that apply to more than a single individual. A marriage contract can be viewed as a set of rules authorizing and forbidding future actions for the two individuals involved. A court decision outlawing some types of agreements among fishers using inshore fisheries is a set of rules affecting future actions for all individuals using the coastal fisheries under that court's jurisdiction. Rules, be they operational, collective choice, or constitutional choice, instruct individuals to take actions that are required or permitted, or to avoid taking action that is forbidden (Gardner and Ostrom 1991; E. Ostrom 1986; see Buck [1989] for an analysis of the rules creating property rights in the American southwest).

⁴Not all actions taken in collective-choice arenas affect rules in use. Passing a new law or writing a new regulation is not the equivalent of establishing a new rule. Laws and regulations must be enforced to become rules (see V. Ostrom 1991). To be effective they must be accepted as legitimate by resource users.

⁵Rules defining the rights of access and withdrawal may or may not permit those rights to be transferred.

withdrawal right authorizing harvesting from a particular area.⁶

Individuals who have access and withdrawal rights may or may not have more extensive rights authorizing participation in collective-choice actions. The distinction between rights at an operational-level and rights at a collective-choice level is crucial. It is the difference between exercising a right and participating in the definition of future rights to be exercised. The authority to devise future operational-level rights is what makes collective-choice rights so powerful. In regard to common-pool resources, collective-choice property rights include management, exclusion, and alienation. They are defined as follows:

- Management: The right to regulate internal use patterns and transform the resource by making improvements.
- Exclusion: The right to determine who will have an access right, and how that right may be transferred.
- Alienation: The right to sell or lease either or both of the above collective-choice rights.

The right of management is a collective-choice right authorizing its holders to devise operational-level withdrawal rights governing the use of a resource. Individuals who hold rights of management have the authority to determine how, when, and where harvesting from a resource may occur, and whether and how the structure of a resource may be changed. For instance, a group of fishers who devise a zoning plan that limits various types of harvesting activities to distinct areas of a fishing ground are exercising rights of management for their resource (see, e.g., Davis 1984; Cordell 1972).

The right of exclusion is a collective-choice right authorizing its holders to devise operational-level rights of access. Individuals who hold rights of exclusion have the authority to define the qualifications

that individuals must meet in order to access a resource. For instance, fishers who limit access to their fishing grounds to males above a certain age who live in a particular community and who utilize particular types of gear are exercising a right of exclusion.⁷

The right of alienation is a collective-choice right permitting its holder to transfer part or all of the collective-choice rights to another individual or group. Exercising a right of alienation means that an individual sells or leases the rights of management, exclusion, or both.⁸ Having alienated those rights, the former rights-holder can no longer exercise these authorities in relation to a resource or a part thereof.

Arranging these rights, as shown in Table

⁶See Copes (1986) for an analysis of quota systems in relation to fisheries. See Wilson (1982) for an effective critique of standard economic theory's limited view of institutional alternatives in relation to fisheries.

⁷If these same fishers revise the conditions that constitute the right of access by expanding the number of fishers who can enter their fishery, they have not exercised a right of alienation. They have not transferred rights to additional individuals. Rather, they have exercised their right of exclusion to redefine who may or may not enter. The right of alienation refers only to the authority to alienate collective-choice rights, that is, to sell or lease such rights.

⁸By alienation we specifically mean the authority to sell or lease collective-choice rights. We do not include the ability to bequeath. In most common-property regimes, users have the ability to bequeath their rights in a resource. Rights rarely die with an individual. In many situations, however, resource users do not have the right to sell or lease their rights to others. Limiting alienation to sale or lease also brings it closer to its economic usage. The importance of a right of alienation for many economists is that it provides the possibility that resources will be transferred to their highest valued use. While being able to sell or lease collective-choice rights provides that potential, the right to bequeath these rights is usually presumed by economists to be an insufficient property right to achieve full efficiency. Larson and Bromley (1990) effectively challenge this commonly held view and argue that much more needs to be known about the specific values of a large number of parameters in a particular setting before analysts can make careful judgments whether the right of alienation leads to higher levels of efficiency than the right to bequeath. See also Anderson and Hill (1990) for an analysis of three different alienation rules that the U.S. government used in transferring public lands to individuals.

TABLE 1
BUNDLES OF RIGHTS ASSOCIATED WITH POSITIONS

	Owner	Proprietor	Claimant	Authorized User
Access and Withdrawal	X	X	X	X
Management	X	X	X	
Exclusion	X	X		
Alienation	X			

1, enables us to make meaningful distinctions among four classes of property-rights holders related to fisheries. The five property rights are independent of one another but, in relation to fisheries, are frequently held in the cumulative manner arrayed in Table 1. It is possible to have entry rights without withdrawal rights, to have withdrawal rights without management rights, to have management rights without exclusion rights, and to have exclusion rights without the rights of alienation.⁹ In other words, individuals or collectivities may, and frequently do, hold well-defined property rights that do not include the full set of rights defined above. On the other hand, to hold some of these rights implies the possession of others. The exercise of withdrawal rights is not meaningful without the right of access; alienation rights depend upon having rights to be transferred.

We call individuals holding operational-level rights of access and withdrawal "authorized users."¹⁰ If specified in operational rules, access and withdrawal rights can be transferred to others either temporarily, as in a lease arrangement, or permanently when these rights are assigned or sold to others. Transfer of these rights, however, is not equivalent to alienation of management and exclusion rights as we discuss below.

The rights of authorized users are defined by others who hold collective-choice rights of management and exclusion. Authorized users lack the authority to devise their own harvesting rules or to exclude others from gaining access to fishing grounds. Even though authorized users may be able to sell their harvesting rights, nevertheless, they lack the authority to par-

ticipate in collective action to change operational rules.

An example of authorized users are the salmon and herring fishers of Alaska. In 1972, the Governor's Study Group on Limited Entry was created to research and develop limited entry legislation, which the Alaskan legislature adopted in 1973 (Adasiak 1978, 771). The Alaskan limited entry system divides Alaskan salmon and herring fisheries into a number of different fisheries. An Entry Commission determines the number of permits available for each fishery. The Commission can make adjustments in the numbers as circumstances change, either by issuing additional permits or by buying back existing permits. Fishers cannot hold more than one permit per fishery. The permits are freely transferable, but cannot be used as collateral. The Alaskan fishers who hold permits are authorized users. The Alaskan legislature in conjunction with a study group devised the fishers' rights of access and withdrawal, which

⁹While theoretically it is possible to hold entry rights without withdrawal rights, in practice this rarely occurs. The distinction between access and withdrawal becomes crucial at a collective-choice level. Oftentimes individuals who hold rights of management and thereby define withdrawal rights are not the same individuals who hold rights of exclusion and thereby define access rights. We provide a number of examples throughout the remainder of the paper.

¹⁰One could also define a position called "squatter" to consist of individuals who possess no rights at any level in relation to a common-pool resource. Squatters use natural resources, such as fisheries, but they do so at their own risk. If challenged by a person who holds collective-choice or operational rights, squatters lack authority to enforce their claims. Squatters stand entirely exposed to the actions of others as concerns the use of a resource.

fishers can transfer. The fishers do not directly participate in making collective choices and thus cannot devise their own operational-level rules concerning the use of their fisheries.

We define as "claimants" individuals who possess the same rights as authorized users plus the collective-choice right of management.¹¹ With the right of management, claimants have the collective-choice authority to devise operational-level rights of withdrawal. They cannot, however, specify who may or may not have access to resources, nor can they alienate their right of management. For instance, the net fishers of Jambudwip, India, are claimants (Raychaudhuri 1972). Jambudwip is an island in the Bay of Bengal which is only occupied during fishing seasons when fishers establish camps and fish off its southwestern shore. The Jambudwip fishers, exercising management rights, have devised a set of withdrawal rules that permit them to coordinate their use of the fishing grounds. At the beginning of a fishing season each crew chooses a spot on which to set their net. A large bag net is suspended between two posts which are then driven into the ocean floor. Rules, as well as environmental conditions, govern the placing of nets. As Raychaudhuri explains:

According to the convention of the fisherfolk, one is not allowed to set his net in a line, either in front or behind another's net. But there is no bar to set on any side of it If one net is set in front of another, both lose the catch, either of the tide or of the ebb. (Raychaudhuri 1972, 174)

In addition, a spot once claimed by a fishing crew belongs to that crew for the remainder of the fishing season. Even if the crew removes its net from the spot and moves to another spot, no other crew can fish the abandoned spot unless first gaining permission from the original crew (*ibid.*, 167–68). While the Jambudwip fishers have exercised management rights by devising rules that define withdrawal rights, they do not exercise the authority to decide who can and who cannot enter the fishing grounds

that they utilize. Consequently, the Jambudwip fishers are claimants and not "proprietors."

"Proprietors" are defined as individuals who possess collective-choice rights to participate in management and exclusion. Proprietors authorize who may access resources and how resources may be utilized, however, they do not have the right to alienate either of these collective-choice rights. Scholars who have recently undertaken theoretical and empirical research on "common-property regimes" focus primarily on those regimes organized by proprietors (National Research Council 1986; Berkes 1989; McCay and Acheson 1987; E. Ostrom 1990). To use the same term for regimes composed of proprietors, who possess four bundles of property rights, and regimes composed of individuals who possess no property rights, clearly confounds the capacity to communicate about important scientific and policy issues.

The fishers who participate in the cod trap fisheries of Newfoundland are proprietors. Cod trap berths are allocated by lottery. To gain access to a berth, a fisher must participate in a lottery. "Only fishermen from the local community are allowed to participate in the lottery" and to sit on the local cod trap berth committee that operates the lottery (Martin 1979, 282). The lottery system is significant in that "the organization of cod trap committees since 1919 has legally codified the boundaries of the fishing space over which a community has political jurisdiction" (Martin 1973, 15).

Turkish fishers who harvest from coastal lagoons are also proprietors. The Turkish government leases lagoons to fishers' co-operatives. For instance, it leases the Ayvalik-Haylazli lagoon to a fishers' co-op of the same name. To access and harvest fish from the lagoon, a fisher must belong to the co-op. In order to belong to the co-op a fisher must reside in one of the three adjacent villages for at least six months and not

¹¹ Alchian and Demsetz refer to the possession of the right of management, but not exclusion or alienation as "communal rights" (1973, 19).

have wage employment income (Berkes 1986, 72). The fishers of Ayvalik-Haylazli lagoon

have exclusive and legal rights to the fish of the lagoon and the lagoon's adjacent waters. All fishermen are cooperative members, and all cooperative members are active fishermen. They protect their rights by patrolling the boundary of their fishing area and chasing off or apprehending intruders. (Three outside fishing boats were apprehended in 1983.) (ibid.)

Neither the fishers of Ayvalik-Haylazli lagoon nor the cod fishers of Newfoundland, however, can sell or lease their rights of management and exclusion.

If in addition to collective-choice rights of management and exclusion, individuals also hold the right of alienation, that is, they can sell or lease their collective-choice rights, then they are defined as "owners."¹² For instance, fishers of Ascension Bay, located in Quintana Roo State, Mexico, are members of the Vigia Chico cooperative. Co-op members have divided Ascension Bay into "individually held capture areas ('parcelas' or 'campos') ranging from 0.5 to more than 3 km²" from which they harvest lobster (Miller 1989, 190). Each co-op member holds complete sets of rights over specific areas. The fishers may transfer their rights of management and exclusion over their particular spot to other fishers of Ascension Bay. "Several campos are sold or bartered each season and such transactions are common knowledge. On occasion, sales are registered with the co-op" (ibid., 192). Once having sold their campos, however, fishers no longer can exercise rights of exclusion or management in relation to Ascension Bay lobstergrounds.

III. DE FACTO AND DE JURE PROPERTY RIGHTS

The sources of the rights of access, withdrawal, management, exclusion, and transfer are varied. They may be enforced by a government whose officials explicitly grant such rights to resource users. If so, such rights are de jure rights in that they are

given lawful recognition by formal, legal instrumentalities. Rights-holders who have de jure rights can presume that if their rights were challenged in an administrative or judicial setting, their rights would most likely be sustained.

Property rights may also originate among resource users. In some situations resource users cooperate to define and enforce rights among themselves. Such rights are de facto as long as they are not recognized by government authorities. Users of a resource who have developed de facto rights act as if they have de jure rights by enforcing these rights among themselves. In some settings de facto rights may eventually be given recognition in courts of law if challenged, but until so recognized they are less secure than de jure rights.¹³

Within a single common-pool resource situation a conglomeration of de jure and de facto property rights may exist which overlap, complement, or even conflict with one another. A government may grant fishers de jure rights of access and withdrawal, retaining the formal rights of management, exclusion, and alienation for itself. Fishers, in turn, may cooperate and exercise rights of management and exclusion, defining among themselves how harvesting must take place, and who may engage in harvesting from their fishing

¹²The rights of alienation can be exercised in total or to a limited set of rights for a limited duration. Given the latter capability, "hybrid" legal arrangements related to the same resource are possible and occur frequently. Alchian and Demsetz (1973, 18) point out that some of the "ambiguity in the notion of state or private ownership of a resource" occurs "because the bundle of property rights associated with a resource is divisible." In fact, all coastal fisheries in the U.S. are apt to be hybrid legal arrangements of one or another variety since the ownership rights to the coastal waters are vested in states. Each state decides whether to assign claimant status to all residents, to all residents who obtain licenses, or to allow various forms of proprietorship to come about through self-organization or through formal lease-hold arrangements.

¹³Note that unchallenged de facto rights are as much a factor affecting action as are de jure rights. Only if de facto rights are challenged do the differences between the two classes of rights become apparent.

grounds. In many situations where local fishers possess *de jure* authorized user or claimant rights, field researchers have found *de facto* proprietor arrangements that are commonly understood, followed, and perceived as legitimate within the local community (Cordell and McKean 1987; Berkes 1986, 1989; Davis 1984; Acheson 1975).

In many instances government officials simply pay little attention to inshore fisheries, leaving fishers with sufficient autonomy to design workable arrangements. For many years this was the case for fishers of Valenca, Brazil, who fished from the adjacent estuary (Cordell 1972). These fishers held *de jure* rights of access and withdrawal when they first developed the fishery at the beginning of this century. Initially, they experienced a number of problems due to the diverse technologies in use. Gear became entangled and was destroyed, leading to violence among the fishers. In addition, fishers fought over the choicest fishing spots (*ibid.*, 105). Over a period of time fishers designed harvesting arrangements that addressed many of the problems they had experienced. The fishers divided the estuary among different technologies so that diverse gears were not utilized within the same area (*ibid.*, 42). In addition, fishers allocated fishing spots by drawing lots to determine the order of use of a particular spot. The Valenca fishers did not initially experience exclusion problems. No other fishers exhibited interest in fishing the estuary. While the Valenca fishers were *de jure* authorized users, they were *de facto* claimants.

The Brazilian government, in an attempt to "modernize" fisheries, made nylon nets available to anyone who qualified for a bank loan arranged by the government through the Banco do Brasil. The Valenca fishers did not qualify for bank loans and could not purchase nets. A number of wealthy individuals around Valenca did qualify, and purchased nets. These individuals hired men to fish with the nets, men who had no prior fishing experience. The men invaded the Valenca estuary. Conflict erupted between the established fishers and

the new entrants. Fishers were shot and equipment destroyed. The *de facto* property rights crumbled as fishers fought for whatever fishing spots they could gain. The fishery was overharvested and eventually was abandoned (Cordell 1978).¹⁴

De facto property systems are important for several reasons. First, the resource economics literature examining property rights and fishery regulation is generally pessimistic about the likelihood of fishers undertaking self-regulation so as to avoid inefficient economic outcomes, such as rent dissipation and the extinction of valuable species. And yet, an extensive empirical literature exists that documents a diversity of indigenous institutions devised by fishers without reference to governmental authorities (Alexander 1977; Berkes 1986, 1989; Cordell 1972; Davis 1984; Faris 1972; Forman 1970; Martin 1979; McCay and Acheson 1987; Pinkerton 1989). Many of these *de facto* arrangements substantially reduce the incentives to overinvest in harvesting effort and to dissipate rent that fishers face in an open access fishery. Understanding the *de facto* arrangements that have enabled some fishers to reduce inefficient use of resources permits the development of better explanations of the conditions that inhibit or enhance effective self-organized collective solutions.

Second, self-organized collective-choice arrangements can produce operational rules closely matched to the physical and economic conditions of a particular site. Within the context of *de facto* proprietor regimes fishers have devised maps of their fishing territories that could not be generated by central authorities. The maps reflect local knowledge of where fish spawn, their habits in particular waters, and where technologies can be used without the efforts of one boat adversely affecting the success of another boat (see, e.g., Cordell 1972 or Berkes 1986). The knowledge needed to establish agreement concerning

¹⁴See Matthews (1988) and Matthews and Phyne (1988) for discussions of the impact Canadian fishing policies are having on the institutional arrangements devised by fishers in Newfoundland.

a set of productive fishing spots is achieved by a community of fishers who learn from their accumulated daily experience on a particular fishing ground. The cost of assigning a government official to devise a similar arrangement would be prohibitive. Nor is such an arrangement enforceable without the commitment of the fishers to the legitimacy of their self-imposed constraints (see, e.g., McGuire and Langworth 1991).

Third, since the professional literature is so pessimistic about fishers adopting effective self-regulation, this literature is used by policy analysts to recommend sweeping reforms. These reforms, however, may "sweep away" successful human efforts to solve extremely difficult problems (see, e.g., Berkes 1989; Davis 1984). Fourth, since the regulation of these *de facto* proprietor regimes is undertaken by local fishers who benefit from these regimes, the costs of regulation are largely borne by these same beneficiaries. Institutional arrangements that internalize the costs of monitoring and exclusion among beneficiaries reduce inefficiencies.

IV. PROPERTY RIGHTS, INCENTIVES, AND OUTCOMES

Different bundles of property rights, whether they are *de facto* or *de jure*, affect the incentives individuals face, the types of actions they take, and the outcomes they achieve. An important difference often discussed in economics is that between owners, who hold a complete set of rights, and all other users who do not hold complete rights. In particular, the right of alienation is believed crucial for the efficient use of resources.¹⁵ Alienation rights, combined with rights of exclusion, produce incentives for owners to undertake long-term investments in a resource. Through the sale or lease of all or part of the property rights owners hold, they can capture the benefits produced by long-term investments. In addition, alienation permits a resource to be shifted from a less productive to a more productive use (Posner 1975). Ownership, however, does not guarantee the survival of

a resource. If owners use a relatively high discount rate, they may still destroy a resource (Clark 1973, 1974) or engage in activities leading to substantial "overexploitation, resource abuse, and overcapitalization" (van Ginkel 1989, 102; see also Larson and Bromley 1990).

Owners of natural resources often invest in the physical structure of resources that maintain or increase the productivity of the resource. For instance, the fishers of Ascension Bay, discussed earlier, place artificial habitats, called *casitas*, on the sea floor in each of their *campos*, which attract lobsters (Miller 1989). Lobsters are attracted because they "are gregarious; because they remain in dens during the day; and because they do not modify existing habitat or build new habitat" (*ibid.*, 190). In addition, *casitas* may enhance the productivity of the *campos* because they provide "refuge sites from predators," and those located near feeding grounds of lobsters "have the potential to reduce predation risk" (*ibid.*). Fishers of Ascension Bay regularly make long-term investments in their fishing grounds.

Rights of alienation, however, are not the only important distinction among rights-holders. Another important difference is that between claimants and authorized users on the one hand, and proprietors and owners on the other hand, based on the right of exclusion. The right of exclusion produces strong incentives for owners and proprietors to make current investments in resources. Because proprietors and owners can decide who can and cannot enter a resource, they can capture for themselves and for their offspring the benefits from investments they undertake in a re-

¹⁵ By efficiency, we focus in this article on the level of resource rents that are obtained by fishers and not dissipated through overinvestment or other inefficient practices. Copes (1972) points out that in relation to fisheries, however, not only can resource rent be dissipated but producer and consumer surplus can be lost, depending upon the institutional arrangements that govern the use of a fishery. We have not attempted to expand our analysis of efficiency to that of total social surplus, as we are not examining property rights to resource units in commodity markets.

source.¹⁶ Owners and proprietors are reasonably assured of being rewarded for incurring the costs of investment (Posner 1975). Such investments are likely to take the form of devising withdrawal rights that coordinate the harvesting activities of groups of owners or proprietors so as to avoid or resolve common-pool resource dilemmas. In addition, owners and proprietors devise access rights that allow them to capture the benefits produced by the withdrawal rights (Dahlman 1980).

Claimants, because of their rights of management, face stronger incentives than do authorized users to invest in governance structures for their resources even though their incentives are weaker than proprietors or owners. Claimants can devise operational-level rights of withdrawal for their situation. Without collective-choice rights of exclusion, however, they can no longer be assured of being rewarded for investing in withdrawal rights. Consequently, whether claimants exercise their rights of management depends upon whether they act within a set of circumstances that allows them to capture the benefits of coordinating their activities even without rights of exclusion.

For instance, claimants may utilize resources that no other groups are interested in using, or claimants may be physically isolated from other populations so that exclusion is not problematic. In such situations, claimants are likely to be able to capture the benefits from exercising their rights of management. The fishers of Valenca, Brazil, discussed earlier, even though claimants, utilized fishing grounds of no interest to other potential users. Over a period of time the fishers devised a number of withdrawal rights that resolved the common-pool resource dilemmas that they faced. For several decades the Valenca fishers enjoyed the benefits produced from coordinating their use of the Valenca estuary. Of course, such arrangements are vulnerable to external invasion as the Valenca fishery attests.

Finally, authorized users possess no authority to devise their own rules of access and withdrawal. Their outcomes are depen-

dent primarily upon the operational-level rights that others define for them. Whether the incentives they face induce them to act so as to achieve efficient outcomes depends upon the institutional design skills of those who hold the collective-choice rights. Since authorized users do not design the rules they are expected to follow, they are less likely to agree to the necessity and legitimacy of the rules. Authorized users may engage in a game with rule enforcers, seeking to gain as much as possible. This leads to an overinvestment in the fishery and inefficient outcomes.

IV. A CONSIDERATION OF THE MAINE LOBSTER FISHERY

The state of Maine has owned the lobster grounds off its coast since its founding. The most general property-rights regime is one of government ownership with *de jure* authorized users status extended to all who obtain licenses (Acheson 1975). In addition to *de jure* authorized user rights, lobstermen in many harbors have developed *de facto* proprietor rights among themselves (Acheson 1975; Grossinger 1975). Prior to 1920, the entire coast was divided into a series of lobster "fiefs" with the men from each harbor or island fishing only the grounds associated with their own harbors. The lobstermen in each fishing village determined who could enter "their" grounds. Further, they decided how these grounds would be used—what production techniques would be allowed, etc. Since the lobstermen could not sell, lease, or bequeath their rights of management and exclusion, they would be classified as *de facto* proprietors.

The enforcement of the *de facto* proprietor rights was borne entirely by the lobstermen of each village. The sanction that

¹⁶See Larson and Bromley (1990) for an important analysis of the "bequest motives" that exist under common property versus the "market incentives that exist under private property." They conclude: "There is no scientific knowledge that can rank the relative magnitudes of the terminal value under private property . . . and common property . . . even assuming a perfect land market" (1990, 254).

they used against anyone who violated communal rules was gear destruction. Lobstermen use large wooden traps, set on the ocean floor, to catch lobsters. These traps are attached by rope to buoys. The easiest means of destroying traps is to cut the rope by which the traps are attached to buoys. Prior to 1920, lobstermen used this enforcement mechanism primarily to enforce exclusion. They cut any traps set in their territory by intruding lobstermen from other areas.

The period of time during which *de facto* proprietor rights existed along the entire coast and remained stable is uncertain, but Acheson reports that they began to change after 1920. He attributes the change to the interaction of two factors—new technology and the shape of the coastline (Acheson 1975, 192). After 1920, lobstermen installed motors on their boats. The motors extended both the range and the type of weather in which the men could fish. No longer did the lobstermen have to fish only during the calm waters of summer. This technological change had its greatest impact in southern Maine where the coast is convoluted and forms deep bays. Men who fished in these bays prior to 1920, “inland” men, did so only during the summer months when lobsters were active in the warm waters of the bays. The “inland” lobstermen had much to gain by invading and gaining access to open water grounds. Being able to fish for more than three months out of the year translated into higher incomes and the ability to pay for expensive motors. The alternative for the inland lobstermen, Acheson argues, was “to be bottled up in small traditional territories near their home harbors” (*ibid.*, 193).

The initial response of the open water lobstermen to these incursions was to retaliate by cutting traps. The open water lobstermen were, however, unwilling to incur these enforcement costs permanently in order to exclude the baymen from their open ocean territories. The change in technological capabilities that allowed fishers to access larger territories meant that stemming the incursions permanently would require the escalation of trap cutting into a full-

scale lobster war. In addition, the open water lobstermen knew that while they might temporarily protect the boundaries of their grounds, future incursions would be a certainty. As a result, “men from open-ocean harbor gangs feel it is better to mix than fight” (*ibid.*). Thus, in the southern part of Maine, boundaries of the former lobster fiefs have slowly become more permeable. Mixed fishing, *i.e.*, groups of men from different harbors fishing the same territories, has become more common. The *de facto* system has slowly evolved to be much closer to the *de jure* system than it was previously.

In general, lobstermen in northern Maine have been more successful in maintaining their *de facto* proprietor rights. The physical environment that these men face is quite different from that faced by the southern lobstermen. The coastline is generally not as convoluted as in the south. There are fewer bays, and harbors tend to face the open seas. Therefore, communally defined territories have tended to include the open seas. Some of the northern fishing villages have quite effectively defended their territories, when challenged, and have further controlled “the total number of men engaged in the fishery in a particular area over a period of time” (Wilson 1977, 101). Wilson argues that the voluntary agreements among lobstermen in these territories “confer on the group the potential benefits of ownership and control” (*ibid.*). Some of the island men have even gained legal recognition by the state of Maine of their proprietor rights.

Acheson reports, for example, that the lobstermen of Monhegan Island persuaded the Maine legislature to forbid fishing in Monhegan waters from June 25 to January 1, providing support for their *de facto* right of exclusion (Acheson 1975, 191). By taking this action, the legislature recognized the existence of a territory called “Monhegan waters.” The State takes on the role of the traditional police officer patrolling waters to enforce proprietor property rights during six months of the year. From January 1 to June 25, the Monhegan lobstermen patrol their own territory. They choose to fish

during this period because most other lobstermen do not fish during these months and the price of lobster is at its highest level.

The fact that *different* property-rights systems exist side-by-side along the Maine coast permits a comparative institutional analysis.¹⁷ Wilson and Acheson collected data from three lobstergrounds whose boundaries were well defended (de facto proprietors) and from three adjoining lobstergrounds whose boundaries were permeable (de jure authorized users). Wilson and Acheson collected data on crowding effects, seasonality of catches, the age and size of the lobsters caught, stock density, and income. They found that defended grounds were not as crowded as undefended grounds. There were fewer boats per square mile in defended areas, and the average catch as measured by the number of lobsters per trap hauled was 60 percent greater in these areas (Acheson 1975, 196; Wilson 1977, 104).

In relation to the seasonality of the two types of fisheries, the average catch remained relatively stable throughout the year in defended grounds. Lobstermen with de facto proprietor rights spread their fishing effort more evenly throughout the year. In undefended grounds, the average catch is quite high from August 1 to December 31, declining dramatically over the remaining several months (Wilson 1977, 106). Average catches are high during this time period because lobsters molt into legal size and there is a rush to harvest such lobsters quickly. Lobstermen without de facto proprietor rights expend much of their fishing effort during five months of the year.

The relatively uncrowded conditions and the stable fishing effort that characterizes defended grounds translate into greater stock densities in those grounds than in undefended areas. Acheson reports that depending on the time of year, stock densities of defended grounds are from 22 percent to 50 percent greater than those of undefended grounds (1975, 202).

In light of the above data, it is not surprising that the incomes of lobstermen who have de facto proprietor rights are, on aver-

age, greater than the incomes of de jure authorized users. As Wilson tentatively reports ($N = 27$), lobstermen from controlled areas average \$22,929 per year as opposed to \$16,449 for lobstermen from uncontrolled areas (Wilson 1977, 108). The work of Acheson and Wilson suggests that de facto proprietors experience greater benefits when compared to de jure authorized users. In addition, their work reveals the importance of holding a right of exclusion. Having a right of exclusion encouraged lobstermen to invest in institutional arrangements to govern their grounds.

The major purpose of this article is to propose a property-rights scale ranging from authorized user, to claimant, to proprietor, and to owner, that provides a better analytical scheme for beginning to explain outcomes achieved by joint users of a common-pool resource, particularly inshore fisheries.¹⁸ By examining the evidence concerning the institutions that govern Maine lobster fisheries and the outcomes lobstermen have achieved, we are calling attention to the importance of discriminating among a range of incentives.

VI. CONCLUSION

The development of effective property-rights systems to manage inshore fisheries is extraordinarily difficult no matter what type of property-rights regime is adopted (Johnson and Libecap 1982; Buck 1988). Assigning full ownership rights does not guarantee an avoidance of resource degradation and overinvestment (Larson and

¹⁷It is this capacity to do comparative institutional analysis that is missed when scholars presume that any regime that is not "private property" must be the equivalent of open access (Bell 1972).

¹⁸The concepts defined in this article would be useful in the analysis of outcomes in other common-pool resources such as grazing lands, irrigation systems, groundwater basins. See Blomquist (1992); Gardner, Ostrom, and Walker (1990); McCay and Acheson (1987); E. Ostrom, Gardner, and Walker (forthcoming); E. Ostrom (1987); National Research Council (1986); Tang (1992).

Bromley 1990; Clark 1973, 1974; van Ginkel 1989). Nor can we simply presume that, if state and Federal governments changed their policies of opposition to locally developed proprietor-rights systems, new and effective property arrangements would emerge in most inshore fisheries. The number of proprietor fisheries in Maine has steadily diminished and may now be only about 10 percent of the territory (Wilson 1977, 109). Other proprietor systems have been shown to be relatively unstable when large exogenous changes occur through technology or the expansion of markets (Cordell and McKean 1987; Andersen 1979; Johannes 1978).

None of the governmental policy interventions that are frequently recommended clearly produce net benefits in all situations either. Quota systems ignore the great differences in the fishing skills of participants and protect the inefficient (Pearse 1980; Johnson and Libecap 1982). Taxes imposed by a larger government raise substantial questions as to how the tax will be used and whether the transfer of funds from the fishers to a government bureaucracy will enhance overall efficiency. Implementing fishery regulations is frequently fraught with unexpected problems and failures (Dewar 1990).

Instead of blind faith in private ownership, common-property institutions, or government intervention, scholars need a better understanding of: (1) the conditions that enhance or detract from the emergence of more efficient property-rights regimes related to diverse resources, (2) the stability or instability of these systems when challenged by various types of exogenous or endogenous changes, and (3) the costs of enforcing regulations that are not agreed upon by those involved. Further, the performance of property-rights regimes in field settings needs to be compared to other regimes in field settings. No real-world institution can win in a contest against idealized institutions. The valid question is how various types of institutional arrangements perform comparatively when confronted with similarly difficult environments.

References

- Acheson, James M. 1975. "The Lobster Fiefs: Economic and Ecological Effects of Territoriality in the Maine Lobster Industry." *Human Ecology* 3 (3):183-207.
- Adasiak, A. 1979. "Alaska's Experience with Limited Entry." *Journal of the Fisheries Research Board of Canada* 36 (7):770-82.
- Agnello, Richard, and Lawrence Donnelly. 1975. "Property Rights and Efficiency in the Oyster Industry." *Journal of Law and Economics* 18:521-33.
- Alchian, Armen, and Harold Demsetz. 1973. "The Property Rights Paradigm." *Journal of Economic History* 33 (Mar.):16-27.
- Alexander, P. 1977. "South Sri Lanka Sea Tenure." *Ethnology* 16:231-55.
- Andersen, Raoul, ed. 1979. *North Atlantic Maritime Cultures: Anthropological Essays on Changing Adaptations*, 299-336. New York: Mouton.
- Anderson, Terry, and Peter Hill. 1990. "The Race for Property Rights." *Journal of Law and Economics* 33:117-97.
- Bell, Frederick W. 1972. "Technological Externalities and Common Property Resources: An Empirical Study of the U.S. Lobster Industry." *Journal of Political Economy* 80: 148-58.
- Berkes, Fikret. 1986. "Marine Inshore Fishery Management in Turkey." In *Proceedings of the Conference on Common Property Resource Management*, National Research Council, 63-83. Washington, DC: National Academy Press.
- , ed. 1989. *Common Property Resources: Ecology and Community-Based Sustainable Development*. London: Belhaven Press.
- Blomquist, William. 1992. *They Prefer Chaos: Institutions for Governing Groundwater Systems in Southern California*. San Francisco: Institute for Contemporary Studies Press, forthcoming.
- Bromley, Daniel. 1982. "Land and Water Problems: An Institutional Perspective." *American Journal of Agricultural Economics* 64 (Dec.):834-44.
- . 1986. "Closing Comments at the Conference on Common Property Resource Management." In *Proceedings of the Conference on Common Property Resource Management*, National Research Council, 591-97. Washington, DC: National Academy Press.
- . 1989. *Economic Interests and Institu-*

- tions: *The Conceptual Foundations of Public Policy*. Oxford: Basil Blackwell.
- Buck [Cox], Susan J. 1988. "Interjurisdictional Management in Chesapeake Bay Fisheries." *Coastal Management* 16:151-86.
- . 1989. "Cultural Theory and Management of Common Property Resources." *Human Ecology* 17:101-16.
- Christy, Francis T. 1975. "Property Rights in the World Ocean." *Natural Resources Journal* 15 (Oct.):695-712.
- Ciriacy-Wantrup, S. V., and Richard C. Bishop. 1975. "Common Property as a Concept in Natural Resource Policy." *Natural Resources Journal* 15 (Oct.):713-27.
- Clark, Colin W. 1973. "Profit Maximization and the Extinction of Animal Species." *Journal of Political Economy* 81 (July/Aug.):950-61.
- . 1974. "The Economics of Overexploitation." *Science* 181:630-34.
- Commons, John R. 1968. *Legal Foundations of Capitalism*. Madison: University of Wisconsin Press.
- Copes, Parzival. 1972. "Factor Rents, Sole Ownership, and the Optimum Level of Fisheries Exploitation." *Manchester School of Economics and Social Studies* 41:145-63.
- . 1986. "A Critical Review of the Individual Quota as a Device in Fisheries Management." *Land Economics* 62 (Aug.):278-89.
- Cordell, John C. 1972. "The Developmental Ecology of an Estuarine Canoe Fishing System in Northeast Brazil." Ph.D. diss., Stanford University.
- . 1978. "Carrying Capacity Analysis of Fixed Territorial Fishing." *Ethnology* 17 (Jan.):1-24.
- Cordell, John C., and Margaret A. McKean. 1987. "Sea Tenure in Bahia, Brazil." In *Proceedings of the Conference on Common Property Resource Management*, National Research Council, 85-114. Washington, DC: National Academy Press.
- Dahlman, Carl J. 1980. *The Open Field System and Beyond: A Property Rights Analysis of an Economic Institution*. Cambridge: Cambridge University Press.
- Davis, Anthony. 1984. "Property Rights and Access Management in the Small Boat Fishery: A Case Study from Southwest Nova Scotia." In *Atlantic Fisheries and Coastal Communities: Fisheries Decision-Making Case Studies*, eds. C. Lamson and A. J. Hanson, 133-64. Halifax: Dalhousie Ocean Studies Programme.
- Dewar, Margaret E. 1990. "Federal Intervention in Troubled Waters: Lessons from the New England Fishers." *Policy Studies Review* 9 (Spring):485-504.
- Faris, James. 1972. *Cat Harbour: A Newfoundland Fishing Settlement*. Newfoundland Social and Economic Studies No. 3. Toronto: University of Toronto Press.
- Forman, S. 1970. *The Raft Fishermen: Tradition and Change in the Brazilian Peasant Economy*. Bloomington: Indiana University Press.
- Gardner, Roy, Elinor Ostrom, and James Walker. 1990. "The Nature of Common-Pool Resource Problems." *Rationality and Society* 2 (July):335-58.
- Gardner, Roy, and Elinor Ostrom. 1991. "Rules and Games." *Public Choice* 70 (May):121-49.
- Gordon, H. Scott. 1954. "The Economic Theory of a Common Property Resource: The Fishery." *Journal of Political Economy* 62 (Apr.):124-42.
- Grossinger, Richard. 1975. "The Strategy and Ideology of Lobsterfishing on the Back Side of Mount Desert Island, Hancock County, Maine." Ph.D. diss., University of Michigan.
- Johannes, Robert E. 1978. "Traditional Marine Conservation Methods in Oceania and Their Demise." *Annual Review of Ecology and Systematics* 9:349-64.
- Johnson, Ronald N., and Gary D. Libecap. 1982. "Contracting Problems and Regulation: The Case of the Fishery." *American Economic Review* 72 (5):1005-22.
- Kiser, Larry L., and Elinor Ostrom. 1982. "The Three Worlds of Action: A Metatheoretical Synthesis of Institutional Approaches." In *Strategies of Political Inquiry*, ed. E. Ostrom, 179-222. Beverly Hills: Sage.
- Larson, Bruce A., and Daniel W. Bromley. 1990. "Property Rights, Externalities, and Resource Degradation: Locating the Tragedy." *Journal of Development Economics* 33:235-62.
- Martin, Kent O. 1973. "'The Law in St. John's Says . . .': Space Division and Resource Allocation in the Newfoundland Fishing Community of Fermeuse." Master's thesis, Department of Anthropology, Memorial University of Newfoundland.
- . 1979. "Play by the Rules or Don't Play At All: Space Division and Resource Allocation in a Rural Newfoundland Fishing Community." In *North Atlantic Maritime Cultures: Anthropological Essays on Changing Adaptations*, ed. R. Andersen, 276-98. The Hague: Mouton.

- Matthews, R. 1988. "Federal Licensing Policies for the Atlantic Inshore Fishery and Their Implementation in Newfoundland, 1973-1981." *Acadiensis: Journal of the History of the Atlantic Region* 17:83-108.
- Matthews, R., and J. Phyne. 1988. "Regulating the Newfoundland Inshore Fishery: Traditional Values versus State Control in the Regulation of a Common Property Resource." *Journal of Canadian Studies* 23:158-76.
- McCay, Bonnie J., and James M. Acheson. 1987. *The Question of the Commons: The Culture and Ecology of Communal Resources*. Tucson: University of Arizona Press.
- McGuire, Thomas R., and Mark Langworth. 1991. "Behavioral and Organizational Modification of Enforcement/Avoidance Theories: The Fisheries Case." Department of Anthropology, University of Arizona, Tucson.
- Miller, David. 1989. "The Evolution of Mexico's Spiny Lobster Fishery." In *Common Property Resources Ecology and Community-Based Sustainable Development*, ed. F. Berkes, 185-98. London: Belhaven Press.
- National Research Council. 1986. *Proceedings of the Conference on Common Property Resource Management*. Washington, DC: National Academy Press.
- Ostrom, Elinor. 1986. "An Agenda for the Study of Institutions." *Public Choice* 48:3-25.
- . 1987. "Institutional Arrangements for Resolving the Commons Dilemma: Some Contending Approaches." In *The Question of the Commons: The Culture and Ecology of Communal Resources*, eds. B. J. McCay and J. Acheson, 250-65. Tucson: University of Arizona Press.
- . 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. New York: Cambridge University Press.
- Ostrom, Elinor, Roy Gardner, and James Walker. Forthcoming. *Rules and Games: Institutions and Common-Pool Resources*. Ann Arbor: University of Michigan Press.
- Ostrom, Vincent. 1976. "John R. Commons's Foundations for Policy Analysis." *Journal of Economic Issues* 10 (4):839-57.
- . 1991. *The Meaning of American Federalism: Constituting a Self-Governing Society*. San Francisco: Institute for Contemporary Studies Press.
- Pearse, Peter H. 1980. "Property Rights and the Regulation of Commercial Fisheries." *Journal of Business Administration* 11 (2):185-209.
- Pinkerton, E., ed. 1989. *Co-operative Management of Local Fisheries: New Directions for Improved Management and Community Development*. Vancouver: University of British Columbia Press.
- Posner, Richard. 1975. "Economic Analysis of Law." In *Economic Foundations of Property Law*, ed. B. Ackerman. Boston: Little, Brown & Co.
- Raychaudhuri, Bikash. 1972. *The Moon and Net: Study of a Transient Community of Fishermen at Jambudwip*. Calcutta: Anthropological Survey of India.
- Runge, C. Ford. 1981. "Common Property Externalities: Isolation, Assurance and Resource Depletion in a Traditional Grazing Context." *American Journal of Agricultural Economics* 63:595-606.
- Scott, Anthony D. 1955. "The Fishery: The Objectives of Sole Ownership." *Journal of Political Economy* 63 (Apr.):116-24.
- Scott, Anthony D., and Francis T. Christy, Jr. 1965. *The Common Wealth in Ocean Fisheries*. Baltimore: Johns Hopkins University Press.
- Sinn, Hans-Werner. 1988. "The Sahel Problem." *Kyklos* 41:187-213.
- Smith, J. Barry, Shlomo Weber, and Hans Wiesmeth. 1991. "Heterogeneity, Interdependence and Equilibrium Industry Structure in Fisheries." Working paper, Department of Economics, York University, Toronto.
- Tang, Shui Yan. 1992. *Institutions and Collective Action: Self-Governance in Irrigation*. San Francisco: Institute for Contemporary Studies Press.
- van Ginkel, Rob. 1989. "Plunders into Planters: Zeeland Oystermen and the Enclosure of the Marine Commons." In *Dutch Dilemmas: Anthropologists Look at The Netherlands*, eds. J. Borssevain and J. Verrips, 89-105. Assen/Maastricht, The Netherlands: Van Gorcum.
- Wilson, James. 1977. "A Test of the Tragedy of the Commons." In *Managing the Commons*, eds. G. Hardin and J. Baden, 96-111. San Francisco: Freeman.
- . 1982. "The Economical Management of Multispecies Fisheries." *Land Economics* 58 (Nov.):417-34.

Access and Distribution

Two Aspects of Changing Local Marine Resource Management Institutions in a Javanese Fishery¹

Anita Kendrick
Cornell University

ABSTRACT Traditional, local sea tenure arrangements or local systems for managing marine resource use have not been widely documented for Java, and the apparent absence of such institutions has often been explicitly noted. This paper attempts to explain this apparent lack of strong local resource management institutions for fisheries in Java by drawing on the study of one rapidly developing fishing community on Java's south coast. The increasing presence of central government authority, coupled with a Javanese cultural tradition that does not include a strong tradition of sea fishing, may have contributed to the erosion of existing local institutions for managing access to fishery resources and prevented the development of strong, new local management institutions as an outcome of fisheries conflicts. It is argued that perhaps because of local people's inability to restrict access to fishery resources, new, informal local institutions, based on Javanese cultural traditions, have evolved for redistributing the fish catch once it reaches shore.

Introduction

The concept of 'open access,' much maligned in recent social science literature on common property resources as contributing to the 'tragedy of the commons' (Hardin 1968), is the *de facto* principle of access to coastal and marine resources in most of Java, as it is throughout Indonesia (Bailey and Zerner 1992). Indonesia's extensive territorial waters are a common property resource legally considered state property and under the management authority of the Indonesian state. The Indonesian government gives no legal recognition to traditional community-based fisheries management systems (Ruddle, in press). The principle of open-access in marine resource use is of course limited by the Indonesian government through laws and regulations governing who may use the resources and how they may be used, but consistent enforcement by a centralized management authority has proven virtually impossible. This situation results in a common property resource management regime which can be described as combining features of both open-access and state control (Berkes *et al.* 1989).

In the literature on fishery resource management, traditional systems of common property management are often equated with sea tenure arrangements, or exclu-

sionary claims to particular marine territory by individuals or groups. Traditional, local sea tenure arrangements do not appear to any significant extent in coastal Java. The literature on marine property regimes in Indonesia has identified traditional common property systems and tenurial arrangements for fisheries and marine resources in parts of Eastern Indonesia (Bailey and Zerner 1992; Polunin 1983 and 1984; Zerner 1989) and Sumatra (Polunin 1983 and 1984) but no clear cases of traditional territorial claims to specific fishing grounds or local systems for managing resource use based on *adat*, or customary law, have been documented for Java. Instead, the apparent absence of such institutions in Java has been explicitly noted by several scholars (Bailey and Zerner 1992; Polunin 1983 and 1984; Sya'rani and Willoughby 1983).²

While open access is the underlying principle in Javanese coastal fisheries, this does not mean access to fisheries resources is unlimited. Government regulations exist which limit access through licensing, taxation, and restrictions on certain gear, such as the 1981 ban on trawlers and specific provincial level restrictions on certain other gears (Bailey 1988 and 1992; Bailey, Dwiponggo and Marahudin 1987). Furthermore, local institutions and rules of resource access have developed, sometimes informally and sometimes through more formal structures, to limit resource access to fisheries in Java and other parts of Indonesia. Such institutions can be elusive to the observer: dynamic and embedded in cultural norms, they are usually location-specific and have evolved in response to particular sets of historical circumstances and conflicts that have arisen as a result of changes in the technological and social aspects of fishing production. Community-based fishery resource management institutions may involve rules and norms relating to distribution of the catch on land as well as access to fish at sea, an aspect which is often overlooked by those focusing on management of the resource rather than social aspects of resource access.

This paper draws on a case study of one rapidly-developing fishing community in an attempt to explain this apparent lack of strong local resource management institutions for fisheries in Java. It presents an argument that the increasing presence of central government authority, coupled with a Javanese cultural tradition that does not include a strong tradition of sea fishing, may have contributed to the erosion of whatever existing local institutions for managing access to fishery resources there had been, as well as preventing the development of strong local management institutions as an outcome of fisheries conflicts. Further, the paper argues that perhaps because of local people's inability to restrict access to the bay's fishery resources, new, informal local institutions, based on Javanese cultural traditions, have evolved for redistributing the fish catch once it reaches shore. The paper begins with a description of the community under study and the historical context in which fisheries development took place, then proceeds to the history of conflicts over new technologies and resource access and the institutional responses to those conflicts. The next section of the paper examines local institutions that concern the distri-

bution of the fish catch after it reaches shore as an illustration of alternative institutions which may affect resource access but are often overlooked. The paper concludes with some comments about the nature of local resource management institutions.

Fisheries Development and the Emergence of Local Resource Management Institutions

Bailey and Zerner (1992) have identified relatively low population density, homogeneous communities and the use of relatively simple extractive technologies as factors which appear to contribute to the efficacy of community fishery resource management systems in Indonesia. Polunin (1984) has argued that sea tenure arrangements are not likely to have developed in areas where people, as a culture, appear to be averse to the sea and marine exploitation is not highly developed. It would appear that sea tenure systems and strong community management institutions for coastal fisheries are likely to have developed in areas with long traditions of marine exploitation in a relatively isolated, and therefore homogeneous, setting. The Maluku and Makassar cultures, for example, where community fishery resource management institutions have been identified by Zerner (Bailey and Zerner 1992; Zerner 1989) and others, have a long tradition of fishing, in contrast to the Javanese, Balinese, or many of the cultures of the Lesser Sundas, where such institutions have not been observed.

In Prigi Bay, East Java, marine exploitation is relatively recent, with all gear other than simple handmade hooks and lines having been introduced since the 1920s. By the time competition and conflict in fishing developed and intensified, Prigi was sufficiently incorporated into the national legal and administrative structure (first colonial and later the independent Indonesian state) that conflicts tended to be mediated by the police or military or district and regency political leaders within the context of the national legal and security structure. This structure does not recognize exclusive territorial claims to the sea, and thus these conflicts did not result in the development of systems of sea tenure. In a more isolated time or place, such conflicts would have been mediated by traditional local leaders who may have been more inclined toward establishing or supporting exclusive territorial claims. It may be that because Java was much longer and more thoroughly under the Dutch legal system than some other parts of Indonesia that such sea tenure systems had less chance to develop or were suppressed so early on that nothing of them remains.

Absence of sea tenure systems does not mean that there are no institutions for regulating resource use and access. Two concepts appear to be key in the formulation of these institutions in Prigi: (1) 'local' people have priority claims to use the bay's resources, and (2) the concept of equity or fairness. While there seems to be an explicit rejection of the idea that anyone can 'own' the sea (including the

government), there is a strong perception that those people living around the bay have a preferential right to the resources. There is also a perceived obligation to share the sea's bounty. This also has to do with the 'luck' aspect of getting a good catch, and the social obligation to share good fortune when it befalls one. Similarly, anyone who uses 'unfair' advantage to reap the benefits of the sea is acting in a socially inappropriate way.

Many of the more explicit 'rules' regarding fishery access in Prigi grew out of specific conflicts over a particular technology. Each new technology introduced was considered 'unfair' initially. These conflicts were often inter-ethnic in nature, because most of the innovators were non-Javanese, and within the last 20 years at least, have been mediated within the national legal-political framework which supported open access to the bay's resources. The more informal norms and traditions surrounding fishing and allocation of the catch seem to have arisen more from Javanese and local cultural traditions. These informal institutions are very powerful because of the dominance of local Javanese in the purse seine and beach seine labor force (see photo 1).

These norms and institutions are dynamic and adaptive, constantly evolving in response to changing external pressures, such as changes in the market and introduction of new technologies, increasing population, and increasing government presence and intervention in fishing activities. They have developed in response to

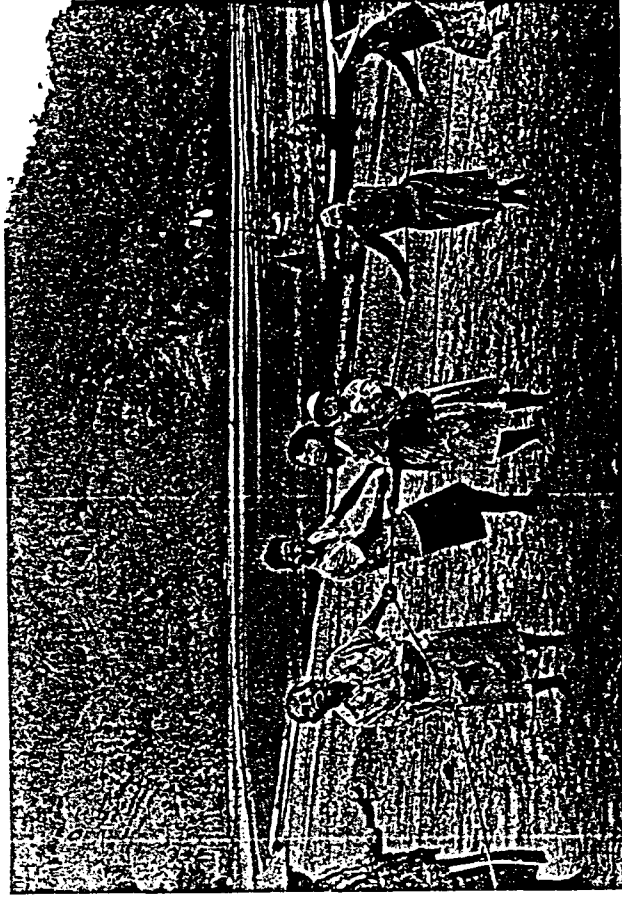


Photo 1. Beach seine pullers (predominantly women) pulling in the beach seine nets.

specific historical circumstances, but are firmly embedded in the cultural norms that govern social and economic relations in the wider community.

Prigi: A Fishing Port on the South Coast of Java

Prigi is a small fishing port located on a small protected bay from which it derives its name on the south coast of East Java (see Map 1). While fishing has been reported there since colonial times (Kolff 1936), with the exception of dried sharks' fins the catch was primarily for the local market until the introduction of purse seines in the 1970s. This was partly due to isolation.³

The whole south coast of East Java is separated from the central agricultural valleys by a limestone mountain range that kept the sparse south coast settlements relatively isolated from the rest of Java until fairly recently. The settlements on the south coast of Java represented the end of the road: beyond Prigi there is only the vast and inhospitable Indian Ocean. As a result, Prigi was formerly a sparsely-settled isolated 'frontier' area, open both to migration and resource exploitation.

The Javanese are basically agricultural people, not oriented to the sea (Polunin 1983; Sya'rani and Willoughby 1983). This is especially true on the south coast with its rough seas, rocky shores, and heavy mythological associations with Nyai Loro Kidul, the Javanese Goddess of the South Seas. Innovators in fishing development throughout Java have been primarily ethnically non-Javanese: people of Madurese, Buginese, and Chinese descent.

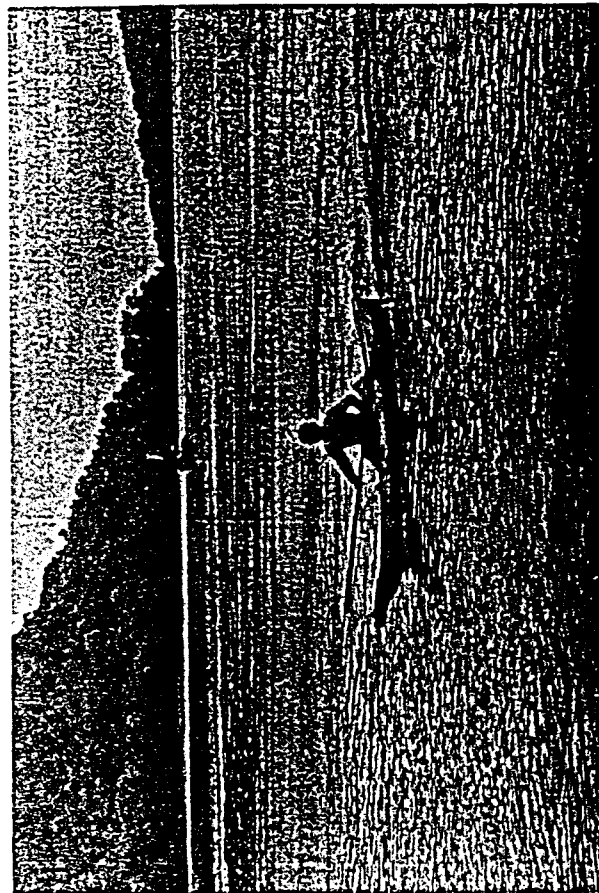
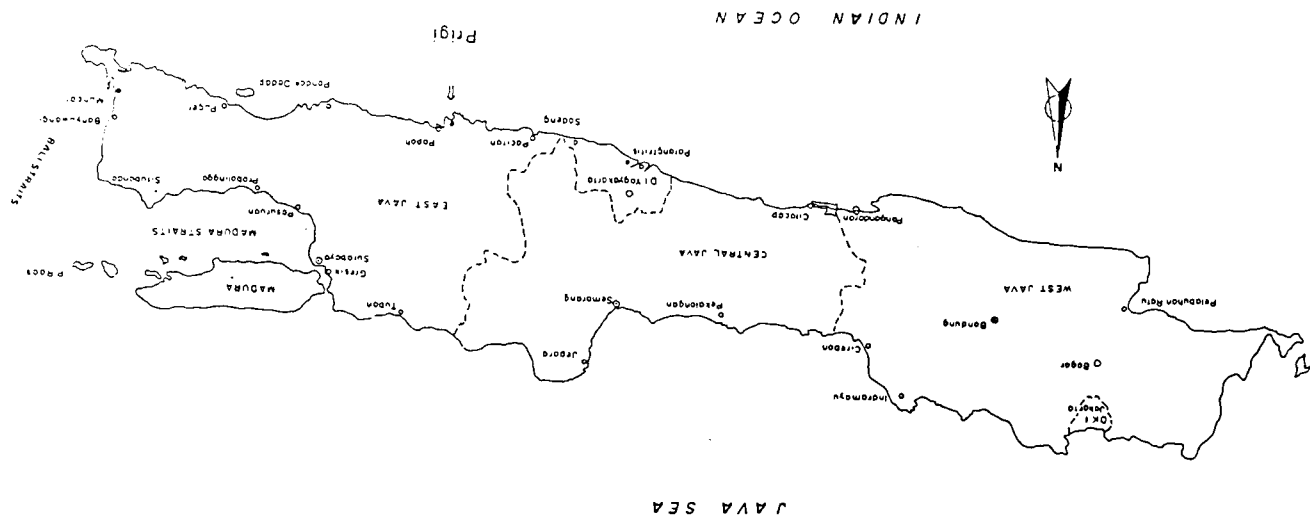


Photo 2. An independent hook-and-line fisherman returning to shore in his small dug-out canoe.



Map 1. Java

Local mythology holds that Prigi was settled by a prince of the court of Solo, and an annual ritual offering to the sea commemorates the peace he made with Nyai Loro Kidul. Irrigated agriculture was established in the narrow valley near the sea, drawing water from the streams cascading down from the nearby hills, and subsistence fishing using hooks and lines from small dugout canoes probably dates back to the earliest inhabitants of the area (see photo 2). It is clear, however, that the early local elites were landowners, supposedly descendants of the court of Solo, who controlled the irrigated rice lands in the valley, rather than fishers of the sea.

Immigration and Ethnic Diversity

Innovations in fishing technology were introduced to Prigi beginning in the 1920s by immigrants of non-Javanese background: they included people of Japanese, Chinese, Dutch, Madurese, and Buginese descent.⁴ These people, using their skills and knowledge, in combination with varying amounts of capital, introduced fishing innovations that transformed the local agricultural economy. Early migrants from these groups were attracted primarily by open access to the untapped marine resources on the south coast of Java. This immigration occurred primarily from the 1920s through the 1970s, although it continues today as fishers from the east and north coasts of East Java migrate both seasonally and permanently to Prigi to seek a living from the sea.

Ethnically Javanese people have also migrated into the Prigi Bay area from the nearby hills and agricultural lowlands. They were motivated by different factors: access to agricultural land and employment in the forests, and to flee poverty, adverse environmental conditions, and political instability. Once in the coastal area, many of these people began fishing, in combination with agriculture and work in the forests, as part of their household's multiple livelihood activities. Over time, as access to forests and private land for agriculture became more restricted, these people and their descendants turned increasingly to the sea as the primary basis for their livelihood, as either independent hook and line or small net fishers, or as crew members for the mostly non-Javanese boat owners. The process of becoming fishers occurred across, and sometimes within generations. This Javanese in-migration took place between the 1940s and the present, with the greatest concentration during the politically tumultuous times of the mid- to late 1960s and into the early 1970s.

Since 1980 a new type of immigration has taken place, as government investment in fisheries infrastructure and other development programs has extended the state apparatus into the area, bringing with it a cadre of mostly low- and middle-level government workers. A government fish auction site (*Tempat Pelelangan Ikan*, or TPI) and other fisheries-related projects and infrastructure were established, and along with this development came public health officers, more school teachers, a rural bank, and other government employees. With the fisheries port and auction site have come commercial fish traders and outside investors in the fishing industry, and more recently, investors in tourism. These outside investors typically come

from large cities and towns around Java, running their operations through a local agent, with relatively little community contact.⁵ These most recent newcomers, symbols of 'development' and incorporation of this formerly quiet village into the international economy, have meant increased social differentiation and marginalization of the earlier residents of both Javanese and non-Javanese ancestry,⁶ as well as increased dominance of the national legal-political government structure.

Fisheries Development and Technological Change

The most significant events in the development of fishing in Prigi within memory were the introduction of beach seines in the 1920s and the introduction of purse seines in the 1970s. Both revolutionized fisheries production and had far-reaching impact on other aspects of the local economy as well.

Beach seines increased production dramatically, creating a surplus that was sometimes destroyed for lack of a market. Competition for beach seine labor resulted in the introduction of a cash economy and paid wage labor into the area, and gradually propelled Prigi into the international economy as cash became available to local households for the first time.

The purse seine's introduction in the 1970s created a similar transformation of the local economy. The purse seine brought production of an unprecedented scale, which resulted in an initial sharp fall in the price of fish, with an impact on fishers using other technologies. As the number of purse seiners increased they created much more demand for labor than any previously introduced technology other than the beach seine. Competition for labor, especially skilled and knowledgeable captains and crew members, resulted in a labor shortage for the beach seines, with the result that women and old men and people from nearby inland villages began to work on the beach seine crews for the first time. The introduction of purse seines also fueled the creation of secondary industries, particularly fish processing. Prior to purse seine introduction, very little fish was processed other than for home consumption.

Since their introduction, purse seine operations in Prigi have become increasingly more capital intensive. As catches have declined, boats have become bigger, and larger and more expensive nets have been purchased. Most costly of all has been the transition from small outboard motors (*mesin tempel*) to inboard engines. These were initially made from modified truck engines, but increasingly specially-designed marine engines are used by those able to afford this technology. In order to compete for the best crew members and to guarantee an adequate catch, boat owners must continually upgrade their gear, requiring more and more capital input to maintain a comparative advantage.⁷

Increasing capitalization has resulted in the increasing marginalization, through competition and probable resource depletion, of small scale, less capital-intensive fishing activities such as small gill nets, hook and lines, and stationary lift nets (*bagan*), but even including the beach seines and original, smaller versions of the

purse seine. The degree of attention paid to the various fishing activities by the TPI and Fisheries Service officials in terms of production data and tax collection provides some evidence of this. Purse seines account for such a large percentage of the total local catch that there is little effort devoted to monitoring and collecting tax on other, less productive gear types.

History of Conflict and Institutional Responses

In the 1920s a Japanese resident of Java introduced the first beach seine to Prigi. Within a few years a Dutch colonial official and a Chinese-Indonesian immigrant from Surabaya were also operating beach seines in the area. These early seines were woven from locally-available tree fibers.⁸ Labor for pulling in the seines was recruited from among the strong young males of the local agricultural population. Early catches in these nets were large because the bay's resources were as yet relatively untapped.⁹

Within a few years many local people, including the locally-powerful landowners, had also invested in the beach seines. As more and more nets were acquired by local people, conflicts developed over access to the limited areas of beach suitable for placing and pulling the nets. These conflicts were resolved through the institution of a rotation system worked out by the beach seine owners themselves. This rotation system still operates with no involvement of local Fisheries Service or other government officials.

The beach seines exercised relative dominance in the local fishery into the 1970s. The introduction of all subsequent gear types threatened their position and was met with strong, and sometimes violent, opposition.¹⁰ Out of these conflicts, local institutions developed for managing access to the resources of Prigi Bay which are still strongly adhered to, and enforced, by local fishers.

In the 1950s people of Madurese descent migrated to the area and introduced the *payang*, a simple seine operated from a wood-hulled boat called a *perahu*. There was initial conflict with the beach seine owners over right of access to fishing within the bay, but once certain guidelines were established by the community regarding where the *perahu* could operate their nets so as not to interfere with the beach seines, the two gear types were able to co-exist in the bay fishery for a few decades. The *payang* fleet in the bay increased but never involved more than about twenty boats, primarily operated by Madurese immigrants.

Around 1970 a group of Buginese men came to Prigi with the intent of fishing, bringing with them very little other than their fishing skills and knowledge of the sea. They bought bamboo from local farmers and used it to build *bagan*, floating lift net fishing platforms. The *bagan* were anchored near shore, in the same areas where the beach seines traditionally operated. Serious conflicts developed over the *bagan*, regarding not only their placement but also the contention of the beach seine owners that the *bagan*, which used lights at night to attract schools of fish, were attracting the fish away from the beach seines, reducing their catch. Inter-ethnic

tensions further fueled the disputes, which at points became violent and required police intervention. In the end, the *bagan* were incorporated into the local fishery. Today *bagan* are still owned primarily by people of Buginese descent, although they employ crews of mostly Javanese background.¹¹

These early conflicts over the entry of new gear were primarily mediated by the local *desa* (village-level administrative unit) officials. These officials were appointed, often for life, and were inhabitants of the community. They received payment in the form of rice land for their own cultivation, and thus formed part of the old agriculture-based village elite, and as such commanded much respect in the village. In the mid to late 1970s a series of violent protests by small scale fishers over the use of trawlers occurred in several fishing ports around Java (Bailey 1988 and 1992; Collier *et al.*; 1979; Emmerson 1982).¹² Trawlers had never operated out of Prigi Bay to any significant extent primarily because the rock and coral on the bay's floor and the narrow continental shelf make trawling unfeasible. Word of the protests over trawling had spread to Prigi, and it was in this context that the first small purse seiner was introduced into Prigi Bay in 1973, by a fisher of Buginese ancestry.

The purse seiner immediately aroused a protest from the beach seiners and other fishers threatened by the competition from this new technology. In the context of heightened political tension over the trawlers in other parts of Java, the language of this protest reflected the 'traditional versus modern' distinction associated with the trawler protest.¹³ The conflict turned violent at times.

By the time of the introduction of the first purse seiner, however, there was a Provincial Fisheries Service (*Dinas Perikanan*) field agent assigned to Prigi. As a representative of national government policy on fisheries, he worked with the local police chief to defuse the conflict, assuring the beach seiners that this new gear was legal, that the government was encouraging 'modernization' in fishing, and that they would have to accept the purse seines' presence in the bay. The same local guidelines concerning non-interference with the beach seines were applied to the purse seines as had been established for the *payang* earlier.

With the introduction of the purse seine, the local fishing economy boomed. Gradually opposition to the purse seines by the beach seine owners abated as more and more of them, and other local people, invested in purse seines themselves. Bank credit was available, and by 1978 the size of the purse seine fleet operating out of Prigi Bay peaked at 67 units. Opposition from the *payang*, hook and line, and other fishers was defused as they themselves were hired to work on the purse seines as captains and crew.

These early purse seiners were small and relatively low-cost compared to the purse seiners in use in 1990. They used smaller boats, but most importantly, the original purse seiners used small (25 H.P.) outboard engines known locally as *tempel*. As competition in the bay increased, these motors were inadequate for going farther and staying longer out at sea, increasingly necessary in order to get an adequate catch. Gradually, the smaller boats with outboard motors were completely

replaced by larger units using onboard engines made from modified truck engines. The number of purse seine units operating out of Prigi Bay declined as many of the early investors could not afford to maintain and upgrade their old equipment as necessary to remain competitive. By 1980 the number of purse seining units operating in the bay had declined to only 43.

In the early 1980s people from outside the bay area began to invest in fishing in Prigi. Most of these outside investors were from the big towns and small cities of East Java, but a few came from further away. These people could afford to invest in the best, most up to date purse seine technologies, including specially-designed marine engines, further increasing competition and costs for the local purse seine operators. Purse seine numbers gradually increased again, reaching 58 units by 1990.

Conflicts over access to the fishery have continued in Prigi even after the purse seines became the dominant gear in the bay. In 1988, and again in 1990, large numbers of ethnically Madurese *payang* fishers from the north coast of Java migrated to Prigi during the peak fishing season, bringing their boats and gear overland by truck. This type of seasonal migration is allowed by the Indonesian government as long as permission and forms are obtained from the home district's Department of Fisheries officials as well as those at the destination. On both occasions the presence of these fishers created immediate unrest in Prigi. The primary complaint was that the *payang* fishers did not 'conform to the local rules' regarding interference with the operation of beach seines and *bagan*. It was alleged that the *payang* fishers would drop their nets too near the *bagan* or purse seines in operation, and would even drop their nets within the area where a beach seine had been cast and was being pulled to shore. However, much of the conflict apparently also had to do with inter-ethnic tensions and activities on shore.

On both occasions the presence of the migrant *payang* fishers caused the local fishers to protest to the Fisheries Service officials in the area, and the local police. Meetings were held to discuss the 'local rules' (sometimes referred to as *adat*¹⁴ by the local people) which the *payang* fishers were expected to follow. The conflicts continued, however, and on the first occasion the *payang* fishers were asked to leave the area by the local police chief. In 1990, however, the right of those with proper permits to remain in the bay was upheld by the regency level authorities.

Only one major fishing technology that has been introduced into the Prigi fishery has not generated significant opposition. This is the gill net, used in conjunction with long lines, for deep sea fishing. These units, called *hanyur* locally, stay three or four days at sea, fishing primarily for sharks and various types of tuna. That there has been no protest over their use, despite the fact that most of these boats, together with their crew, come from another district in East Java, helps to illuminate the principles underlying the informal rules which govern resource access. Because these boats operate exclusively outside the bay, there has been no concern voiced by local fishers over their operation. Although distinct boundaries were never discussed by local fishers, this illustrates clearly that a proprietary claim

of rights to the bay's resources is a fundamental part of the conflicts that have erupted over fishing technologies. Boundaries are an implicit part of the rules and expectations which govern fishery access in the bay.

These later conflicts, since the 1970s, differ from the earlier conflicts over the introduction of new gear in that rather than being resolved by the fishers themselves, or local *desa*-level officials, through new rules and arrangements for resource access, these conflicts were mediated by representatives of national, provincial, and district levels of government: Fisheries Service officers, police, and even the military. Since the 1970s village (*desa*) officials have not been involved in the resolution of fisheries conflicts in Prigi, other than as an organ for disseminating information and decisions. This reflects their declining power in the highly centralized government of New Order Indonesia.

The Directorate General of Fisheries (*Direktorat Jenderal Perikanan*), and its provincial counterpart, the Provincial Fisheries Service (*Dinas Perikanan*), have actively encouraged modernization and capitalization in the fishing industry, with the goal of increased production. At the same time, the Indonesian state under the Suharto government has placed a high priority on maintaining stability, especially in heavily-populated Java. This concern for stability has in a few instances caused the Indonesian government to disregard its technology and capital-bias and take the side of the small scale fishers using more 'traditional' technology, as in the famous case of the trawl ban (Bailey 1988 and 1992). This case of supporting small scale fishers over the interests of a more capital-intensive fishing industry has been the exception, rather than the rule, however. Fisher protests in Prigi and surrounding communities have for the most part not been resolved in favor of the small scale, low-technology fishers. The violent incidents in Muncar, Cilacap, and other fishing ports in Java in the late 1970s and again in the late 1980s, have made government authorities wary of these large, volatile fishing communities, as the fishers in these places are aware. They also know the power and willingness of the Indonesian government to put down protests, however, so that show of strength on the part of fishers in opposition to government policy or government-supported technologies is a dangerous and delicate balancing act.

The new investors in fishing in Prigi, affluent entrepreneurs from the cities of East Java, have a much greater ability to influence fisheries policy and enforcement at the district, provincial and national level than do the small scale fishers of Prigi. With a shift away from local institutions and *desa*-level enforcement to a legal-political structure based at the provincial and national level, the small, and even medium scale investors in fishing technology do not have the means to influence policy and enforcement decisions in their favor, other than through threats to political stability. While so far the greater financial and political power of the outside investors in Prigi's fishery have not been wielded directly against the local fishers, the potential exists.

Local Institutions Affecting Distribution of Fisheries Resources

Conflicts and institutions regulating access to the bay's fishery resources at sea, however, are only a small part of the local institutions and customary practices relating to fishery resources operating in Prigi, and elsewhere in Java (Collier *et al.* 1979; Polunin 1983). In Prigi, the strongest local institutions relating to the fishery have to do not with limiting access to the fishery resources, but with reallocation of the catch once it reaches shore. Perhaps because of an inability to restrict access to the bay's resources, the locus of control may have shifted *to land*, where strong local institutions do exist for redistributing the catch of fish post-harvest. Most local people cannot compete for access with capital-intensive gear such as beach and purse seines, and have no access to these gears. A concern with equity and fairness underlies these redistributive institutions. Access is open, but local institutions of equity, fairness, and reciprocity demand that a large catch must be shared widely among the community.

Redistribution of the catch takes many forms, from simply asking for a few fish to an elaborately detailed and uniformly enforced share system. Three distinct forms that can be considered 'institutions' exist in Prigi which reallocate access to the fish catch: (1) the share system used on purse seiners, (2) a system of taking on extra temporary crew members for the purse seiners' peak season, known as *ngadin*, and (3) various institutionalized mechanisms for 'taking' or 'stealing' the fish before it reaches the auction site, or simply giving it away.

When purse seines were first introduced, each boat owner established his own system for paying the crew members, with most of them paying a set wage for each day's work, regardless of the catch. After a while, the laborers began to lobby the boat owners for a share of the catch rather than wages as payment, arguing that they should share in the luck of the catch. The crew members wanted to have greater access to the frequent (in those early days) windfalls, and if that meant that on the days when they got no catch they received no pay, they felt it was worth the risk. A meeting was held in 1977, attended by all the purse seine owners, captains, and crew members, as well as the local police, military officers, and Fisheries Service officials. The present share system was decided upon at this meeting (one-third of net profits to the crew and two-thirds to the owner), codified, and imposed on all subsequent purse seines operating in Prigi Bay. There is virtually no deviation from this system on any purse seines.

A purse seine crew member's income has two major components: his share of the 1/3 of the monthly net profit divided among the crew members (calculated each month around full moon when purse seines cease operations for a few days), and a daily *lawuhan* (literally 'daily food'), a small amount of fish from the day's catch. This was originally intended to be taken home for the family meal, but is now often quite a substantial amount to be sold for a few thousand rupiah per fisher.¹⁵

A second institution operates to provide those individuals without permanent positions on purse seiners an opportunity to share in the harvest during peak fishing season. Purse seiners operate with set crews of 14 to 15 people; however, during peak season one may see purse seiners going out with as many as 30 to 35 people on board. These additional laborers *ngadin*, or 'go along,' to help pull in the nets. In return they get fish as *lawuhan* (for daily food) in the same amount as permanent crew members, but no share in the monthly division of the profits. In this way, almost every able-bodied man or youth from Prigi who wants to be able to work on a purse seiner during the peak season, and brings home a good day's income from the sale of his *lawuhan*. In this way youths are trained and acquire skills that help them get permanent positions on purse seiners. The primary purpose of allowing people to *ngadin*, however, is to provide greater access to the catch. Captains and boat owners all say that the presence of these additional hands decreases rather than increases operating efficiency on the boat, yet when a crew member appears with a brother, cousin or friend who wants to *ngadin*, they are 'forced' to allow them to go along. Significantly, the practice of *ngadin* has originated only within the last eight to ten years in Prigi, and apparently does not exist much in other fishing ports in Java.

A third institution which operates to redistribute the catch are a number of ways of taking fish after it has been caught but before being sold; some of these are known locally as *ngetrawl*. Small boys and old women, in particular, can be seen at the beach and auction site going from basket to basket of fish, taking a handful of small fish and stuffing them into a pocket or a sarong, or in some cases even a small bucket or plastic bag. These activities are almost completely ignored, as the people who do it are considered needy and the activity shameful.¹⁶ To call attention to it would create more shame for all involved.

A much more blatant form of appropriating fish from a boat's catch is carried out by the strong young men who operate *sotho*, or push scissor nets, in the area around where the purse seiners land. Prigi has no working pier or jetty, so boats are anchored near shore and laborers are employed by each boat to carry the catch in large baskets from the boat to the auction site for weighing, sometimes in shoulder-high waves. Many fish fall out of the baskets in the process, and the men with *sotho* nets scoop up the fish that 'fall' back into the water. Amidst the chaos of many boats unloading large catches in high waves, the fish are often 'helped' out of the baskets. Boat owners, and to a lesser extent captains, are watchful and try to stop the crowds from knocking fish out of the baskets, but are basically powerless. Security officers of the fishing port are responsible for guarding the fish once it reaches the shore, but the catch is considered the responsibility of the boat's captain and crew until it reaches shore.

Less blatant, but more significant in terms of volume of fish redistributed, are the various forms of giving fish away. Every employee of a purse seiner feels he has the right to give some fish to his friends and relatives. As soon as the boats land

near shore, young men and boys can be seen wading up to the boats and receiving plastic bags filled with fish being given to them by crew members.

Similarly, the *pemikul* or laborers who carry the baskets of fish to the auction site can be seen pulling fish out of each basket they carry and piling it in a corner, watched over by a female fish vendor or small boy. When a boat comes in empty during a time when most other boats have received a good catch, the captain and crew of the unlucky boat will be given fish by the captains of the other boats, creating a reciprocal obligation. Reciprocity clearly underlies many of these redistributive institutions.



Photo 3. Small children and adults alike help themselves to a 'share' of a bountiful haul by a beach seine.

All of these means of redistributing the catch occur before the fish is weighed at the auction site: thus this fish is not included in official production data, and has no tax paid on it. Once the fish is weighed and sold to a fish dealer there appears to be an unwritten rule against taking it. The fish taken informally are either consumed locally or make their way into 'black market' fish sales, untaxed by the government fisheries cooperative (KUD).

This redistribution of the catch is not insignificant. Purse seine owners estimated between ten and thirty percent of the catch disappears through these various forms of redistribution. The owners are concerned about the loss, but complain that there is nothing anyone can do about it. For a while the fishing port implemented a security system to eliminate the taking of fish, for which the purse seine owners were assessed an additional 1% of the catch as payment for the service. After a few months purse seine owners refused to pay the fee because the system was totally ineffective, and it was abandoned.

Despite complaints from boat owners about the loss, no one in the community ever refers to any of these redistributive mechanisms as 'stealing,' and if an outsider used the words 'stealing' or 'theft' in this context they displayed discomfort.¹⁷ In fact, people tried to ignore that these things were going on at all, and showed great reluctance to talk about them except in private. People with long histories in the community, including purse seine owners, tended to minimize the significance of

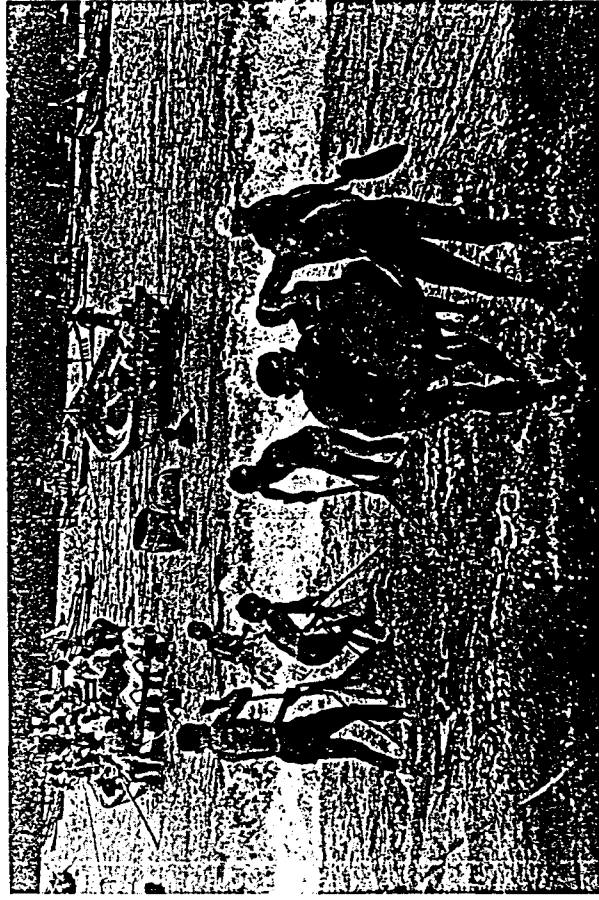


Photo 4. Non-crew members seek 'informal' access to the catch as purse seiners are unloaded in Prigi.

these redistributive mechanisms when asked about them, whereas outsiders and relative newcomers, whether fisheries officials or purse seine owners, were more likely to see it as a significant problem.

The only other gear for which significant redistribution of the catch occurs is the beach seine. When a beach seine brings in a good catch, a free-for-all ensues as small children and the beach seine laborers themselves run about grabbing fish and stuffing it in pockets, inside sarongs, and buried in the sand marked by their pointed bamboo hats (see photos 3 and 4).¹⁸ Those who are not bold enough to simply take it congregate to watch the hauling in of the nets and to ask for some fish to take home.

Of course some giving away of fish to neighbors and kin when a fisher gets a good catch occurs with all fishing methods, but with no other gears does it take the form of theft, nor is it so blatant or so significant as with the beach seines and purse seines. These two types of gear have three things in common: a typically large catch, a large number of laborers relative to other types of gear,¹⁹ and a labor force that is predominated by people of Javanese ethnicity. Loss of fish through redistributive mechanisms is not a problem for gear operated by crews recruited from outside the local community, such as the shrimp gill net fishers and the combination gill net/long line boats (called *hanyut* locally), because these crews do not have a network of kin and social obligations in the local community (see photo 5).



Photo 5. Ice being loaded onto a combination gill net/long line boat which will stay out at sea three to five days.

The type of fish caught also is a factor. Small schooling pelagic species, such as are usually caught in the purse seines, lend themselves more easily to redistribution than do larger species such as large tuna, marlins, and sharks. Most significantly, redistribution occurs only when the catch is abundant, again pointing to the concern with equity and luck which underlies it. During the off season, when a purse seiner might bring in only a hundred kilograms or so of fish if it has a catch at all, no one dares take, or even ask for, any of the catch, and there are no extra crew members going along as *ngadim*. *Lawuhan* is still given to the crew, however, and in fact, the entire catch is likely to be given as *lawuhan* when the catch is small.²⁰

Conclusions

Local institutions of marine resource management do exist in Java, despite the fact that they have not been widely observed. However, as this case study illustrates, with the increasing penetration of the Indonesian state's political and legal apparatus into the rural coastal areas of Java, local institutions for regulating access to fisheries resources have been weakened and have had less and less opportunity to develop, as conflicts which might have given rise to local management institutions have been mediated in accordance with national level policy favoring open access. At the same time, and often overlooked, however, other, more informal local institutions have been rapidly evolving which do not attempt to limit access to the fishery resources, but rather redistribute those resources after they have been extracted, in accordance with cultural norms related to equity, fairness, and reciprocity.

Despite the pressures of a centralized legal-political framework, however, local norms and rules for regulating marine resource access continue to persist in at least some parts of Java. These institutions may be elusive, if not invisible, to observers, as well as to new entrants into the fishery. They are dynamic and adaptive, constantly changing in response to external stress, be it social, economic technological, or environmental. *Adat*, or customary rules and practices, are not institutional relics that have been carried over from colonial times, but are an evolving set of norms and expectations that regulate social interaction.

Efforts to establish fisheries co-management in areas without strong, well-recognized institutions of local resource management should recognize that such institutions may not have had the opportunity to develop because of the presence of the apparatus of centralized government authority in the community, but also that in looking for evidence of local management institutions one should look beyond institutions regulating resource exploitation to other, related cultural institutions which may exist to affect resource use in more indirect ways.

Notes

1. This is a revised version of a paper which was presented at the fourth annual meeting of the International Association for the Study of Common Property, Manila, Philippines, June 16-19, 1993. Field research on which the paper is based was carried out in Java from 1989 to 1991, supported by a U.S. Department of Education Fulbright-Hays Dissertation Research Fellowship.
2. I have found very few references to cases of marine tenure or traditional resource management systems on Java. Polunin (1984) cites an anonymous Dutch source (Anon. 1921) which referred to markers in the sea indicating fishing spots or territorial boundaries off Tuban, on the north coast of Central Java, but even this could have been a misinterpretation on the part of the observer. Sya'rani and Willoughby (1983) have argued that adat-based marine management did not exist on Java, and Zerner and Bailey (1992) have similarly noted that traditional marine management systems have not been documented in Java, or for the Lesser Sunda Islands. Polunin (1984) speculates that in certain areas marine tenure systems either never existed or disappeared some time ago, and Ruddle (in press) has hypothesized, based on their wide geographical distribution within Indonesia, that local community fisheries management systems were formerly much more widespread than they are today.
3. Perishability of the product was another factor. Ice became widely used only after the introduction of purse seines. Aside from issues of isolation and perishability, however, the fact that the catch of fish was primarily consumed by the local market also reflects the generally low level of production.
4. Van der Kolff (1936), during his visit to Prigi in 1936, noted "...the establishment of several large fishing concerns in the hands of Europeans and Non-indigenous Orientals (*sic*)..."
5. Zerner (1991) has observed a similar process of increasing control by investors from outside the local fishing community in the Mandar raft fishery in South Sulawesi.
6. The power structure in Prigi has changed over the last 50 years as fisheries resource exploitation has increased. The old elites in Prigi derived their power from control over the irrigated rice lands and access to the resources of the forests. Most of these people (and their descendants) have maintained control over these resources, but the power and prestige that control over these resources provides has decreased with the development of the fishing industry.
7. Similar upwardly spiraling costs and increasing capitalization has been documented by Zerner (1991) in the raft fishery of Mandar, South Sulawesi.
8. Little capital was required for these early beach seines which were made of locally-available natural materials such as tree bark. Innovators introduced the skill and knowledge for making and using the nets, and local people then followed suit and profited. Beach seines continued to be made of these local materials until the 1960's when purchased nylon net began to be used.
9. A photograph from the 1930s showed five large sharks hauled in by the beach seines, whereas today large sharks are almost never found inside the bay.
10. In the end, however, the newer technology prevailed, and beach seines lost out to the purse seines due to competition for crew, lower prices effected by the greater volume of fish caught by the purse seines, and ultimately, resource depletion as the catch in the area near shore where beach seines are confined to operate declined. Today in Prigi, beach seines still operate, especially during particular seasons, but their ownership no longer provides great local power or wealth. One measure of this decline is the fact that the laborers who pull in the nets are now recruited from among the women and old men of nearby farming households. Able-bodied young men are recruited as crew members for the purse seiners, and the pulling

in of the beach seines has such a low status that most members of the fishing community shun it. Work on the beach seines is the only type of fishing labor in Prigi which is paid a wage rather than a share of the catch.

11. One of the reasons that the *bagan* are still controlled by the Buginese immigrants is that they have been banned by the provincial government. Local fisheries officers have accommodated the *bagan* owners by allowing those which already existed at the time of the ban to remain, but prohibiting new *bagan* entering the local fishery.
12. See Bailey (1988 and 1992) for a detailed discussion of Indonesia's ban on trawlers and its impact.
13. Collier *et al.* (1979) and Emmerson (1982) have observed that the protests by small scale fishers in Java concerned not only trawlers but other 'modern' fishing gear as well. This was especially true in Banyuwangi, East Java, which has long had a strong influence on fisheries development in Prigi through migration.
14. *Adat* is defined as custom or tradition, but has also come to have a more formal legal meaning of customary or traditional law. Dutch colonial law explicitly recognized *adat* law in certain instances, as does the Indonesian government today. However, *adat* based community fisheries management systems have no legal basis under current Indonesian law.
15. Collier *et al.* (1979) have described a similar share system with a daily *lawuhutan* used on the north coast of Central Java.
16. Collier *et al.* (1979) found a similar practice being carried out by young boys, referred to as *anak alang-alang*, in fishing communities on the north coast of Central Java.
17. The only person I ever heard use the word 'stealing' (*curi*) in reference to any of these activities was a purse seine investor from a major city who said he had to stay in Prigi to supervise during peak fishing season in order to minimize his loss.
18. Beach seine laborers generally receive a share of fish as *lawuhutan*, in addition to their guaranteed wage, when the catch is good.
19. Beach seine crews typically include between 20 and 50 laborers, depending on the size of the net; purse seine crews usually consist of between 14 and 17 regular members.
20. Collier *et al.* similarly observed in their study of fishing communities on the north coast of central Java that the owner sometimes gives up his own *lawuhutan* to ensure that the crew have an adequate amount.

References Cited

- Anon.
1921 Visscherij in Toeban. *Adarechibundels* 1:52-78.
- Bailey, C.
1988 The Political Economy of Marine Fisheries Development in Indonesia. *Indonesia* 46:25-38.
1992 Lessons from Indonesia's 1980 Trawler Ban. Paper presented at the third annual meeting of the International Association for the Study of Common Property, Washington, DC, September 1992.

- Bailey, C., A. Dwiponggo and F. Marahudin
1987 *Indonesian Marine Capture Fisheries*. ICLARM Studies and Reviews 10. Manila: International Center for Living Aquatic Resources Management/Jakarta: Directorate General of Fisheries and Marine Fisheries Research Institute, Ministry of Agriculture.
- Bailey, C. and C. Zerner
1992 Community-Based Fisheries Management Institutions in Indonesia. *MAST* 5(1):1-18.
- Berkes, F., D. Feeny, B.J. McCay and J.M. Acheson
1989 The Benefits of the Commons. *Nature* 340:91-93.
- Collier, W.L., H. Hadikoeworo and M. Malingreau
1979 Economic Development and Shared Poverty among Javanese Sea Fishermen. In: A.R. Librero and William L. Collier (Eds.), *Economics of Aquaculture. Sea-Fishing and Coastal Resource Use in Asia*. Proceedings of the Second Biennial Meeting of the Agricultural Economics Society of Southeast Asia, Nov. 3-6, 1977. Manila: Agricultural Development Council, Philippines Council for Agriculture and Resource Research.
- Emmerson, D.K.
1982 Orders of Meaning: Understanding Political Change in a Fishing Community in Indonesia (1975). In: B. Anderson and A. Kahin (Eds.), *Interpreting Indonesian Politics: Thirteen Contributions to the Debate*. Interim Reports Series, Publication No. 62. Ithaca, NY: Cornell Modern Indonesia Project.
- Hardin, G.
1968 The Tragedy of the Commons. *Science* 162:1243-48.
- Kolff, G.H. van der
1936 The Historical Development of the Labour Relationships in a Remote Corner of Java as They Apply to the Cultivation of Rice: Provisional Results of Local Investigations. The Netherlands: National Council for the Netherlands and the Netherlands Indies of the Institute of Pacific Relations.
- Polunin, N.V.C.
1983 The Marine Resources of Indonesia. *Oceanography and Marine Biology: An Annual Review* 21:455-531. Aberdeen University Press.
- 1984 Do Traditional Marine 'Reserves' Conserve: A View of the Indonesian and New Guinean Evidence. In: K. Ruddle and T. Akimichi (Eds.), *Maritime Institutions in the Western Pacific*. Senri Ethnological Studies No. 17. Osaka, Japan: National Museum of Ethnology.
- Ruddle, K.
in press *A Guide to the Literature on Traditional Fishery Management Systems of the Asian and Pacific Tropics*. FAO Technical Paper. Rome: FAO.
- Sya'arani, L. and N.G. Willoughby
1985 The Traditional Management of Marine Resources in Indonesia, with Particular Reference to Central Java. In: K. Ruddle and R.E. Johannes (Eds.), *The Traditional Knowledge and Management of Coastal Systems in Asia and the Pacific*. Jakarta: UNESCO.
- Zemer, C.
1990 Marine Tenure in Indonesia's Makassar Strait: The Mandar Raft Fishery. Paper presented at the first annual meeting of the International Association for the Study of Common Property, Duke University, Durham, North Carolina, September 1990.
- 1991 Sharing the Catch in Mandar: Changes in an Indonesian Raft Fishery (1970-1989). In: J.J. Pog-gie and R.B. Pollnac (Eds.), *Small Scale Fishery Development: Sociocultural Perspectives*. ICMRD: University of Rhode Island.



Pergamon

World Development, Vol. 23, No. 6, pp. 1053-1063, 1995

Copyright © 1995 Elsevier Science Ltd

Printed in Great Britain. All rights reserved

0305-750X/95 \$9.50 + 0.00

0305-750X(95)00024-0

Talking Claims: Discursive Strategies in Contesting Property

LOUISE FORTMANN*

University of California, Berkeley, U.S.A.

Summary. — This article examines discursive strategies in the struggle over property rights in rural Zimbabwe. Stories told by villagers and the owners or former owners of nearby large commercial farms are analyzed in terms of their framing of the issue, the voice of the teller, time frame and audience. Villagers' stories are shown to legitimize present claims in terms of past recognition of their access rights. Farmers' stories are shown to attempt to shift part of the legitimacy of their property claims onto grounds of ecological stewardship.

...the power to make rhetoric is better than no power at all (Zagacki, 1992, p. 52).

Let me tell you a story. For all I have is a story (Trinh, 1989, p. 119).

1. INTRODUCTION: TWO STORIES OF A FENCE¹

This story about stories begins with a story of two stories. The action commences in the Communal Areas of Zimbabwe. Starting in the late 19th century, European settlers seized most of the best land, forcing African residents onto small patches of poor quality, poorly watered land which have been known by various names over time — they are currently known as Communal Areas (Moyo *et al.*, 1991; Ranger, 1967; Palmer, 1977). Cheek by jowl with the Communal Areas are large-scale commercial farms of thousands of acres owned by whites and, since Independence, to a lesser extent by wealthy black commercial farmers.² A flurry of fencing over the past 60 years has resulted in a communal area commons that is shrinking in two directions. First, the land area is shrinking. Second, the trees are literally shrinking — in some places there are few large trees left. So whether you look out or up, the resource base is reduced. This, not surprisingly, has led to contestations over property by many means.

Our first story was told by the white former owner of a large-scale commercial farm which in the 1960s was taken in hand for the first time and fenced with barbed wire. The fence ran along the bank of river which separated the Communal Area village from the commercial farm. While it was a give-and-take fence

(that is, every other pool in the river including all sacred pools was supposed to be given in the villagers) and was sited with the help of the chief, it was resented by local people, who had long used the farm for grazing and tree products. Even the commercial farmer acknowledged that it was hardly surprising that people who had used the area for so long thought of it as theirs. His tale:

"In 1966 we put up the fence. That's when the war started." He saw the obvious astonishment registered on my face — the war in 1966? Here? "No, not that war," he said, dismissing the liberation war, "the war of the fence!" So it transpired, he related, that every time he put the fence up, the people took action. They didn't just climb over the fence. They didn't just cut the wire. They took the fence down and carried it away. All in all, he estimated, they carried off 20 kilometers of fencing.

Across the river the old men of the village also tell a story. In their rendering, the white former owner "used to let us use the farm. We could go there with our cattle and collect firewood and fruit and *harati*."³

*I have incurred substantial intellectual debts in writing this. Nontokozo Nabane provided outstanding field assistance. I owe a particular debt to my Special Research Assistant, Elizabeth Ann Fortmann, who meticulously kept a duplicate set of my field notes for me. Profuse and wholly inadequate thanks for helpful comments are due to Carol Clover, Donald Moore, James Murombedzi, Marshall Murphee, Brian Murphy, Nancy Peluso, Emery Roe, Jim Scott and the Yale Agrarian Studies Symposium, Kate Showers, Paul Showers, and Michael Watts. The research was funded by a Fulbright Fellowship, a Ford Foundation grant to the Centre for Applied Social Sciences, University of Zimbabwe, and the American Council of Learned Societies.

Remembering my interview with the farmer, I asked, "But didn't he put up fences?" Oh yes, they answered, but he put in gates for us to use.

The colonial history of Zimbabwe and the character of the white farmer in question make it highly likely that the gates did not exist. I will argue here that the stories about these mythical gates opening through a real fence from a resource-poor area into a farm with much needed grazing, fruit, fuelwood, poles, edible insects and medicine were part of deliberate discursive strategies of both commercial farmers and villagers to articulate and assert the basis and legitimacy of their own claims to the commercial farm land and its resources. They illustrate the role of stories in property relations and claims.

This is not simply another example of the use of directed rhetoric and moral suasion as part of a overt struggle over property claims (Fortmann, 1990). Rather the work of the stories discussed here (which rarely, if ever, featured openly in Zimbabwean struggles over property) is to create and maintain an often localized discourse in the context of which other parts of the struggle proceed. It is commonplace to say that property rights are constantly being renegotiated. The argument here is that these stories constitute part of a discursive strategy that is a crucial component of the process of renegotiation. Stories are an important oral manifestation of a local discourse seeking to define and claim "local" resources (Peters, 1984). They serve to bolster people's confidence in their own claims (Rappaport, 1990).

This article proceeds in three parts. First, the role and construction of stories is explored both generally and specifically in regard to property. Second, stories from villagers and commercial farmers in Zimbabwe are presented and analyzed. Third, the implications for property research are briefly considered.

2. THE POWER AND WORK OF STORIES

Story telling is not just for the amusement of small children by night or visiting researchers by day. Rather it plays a strategic and serious role in the life of communities (Carr, 1986, p. 161). Invoking J. L. Austin. John B. Thompson (1984, pp. 6, 207) urges us to remember that "speaking is a way of acting and not simply a way of reporting or describing what is done," emphasizing that "...narrative should be seen...also as a medium through which...events are produced." This theme is picked up in arguments for the power of story and narrative found both in stories told about stories and in empirical evidence of the role of narratives. We shall see that stories have the power to frame and create understanding; to create and maintain moral communities; to validate current actions; and to empower, encourage and relieve their tellers. The understanding of past and current events shaped

by stories forms a discursive strategy through which struggles are waged.

Emblematic of stories about the power of stories are two folk tales recounted by Ramanujan (1991, pp. 42-45). In the first, the telling by a poor widow of the story of her ill-treatment by her family demolishes the building around her. Here the power of stories is physically manifested. In the second, a story left untold causes great mischief until the person who knows the story tells it. Here the lesson is that there are stories that must be told — discourses which require maintenance. It underscores that we must work at remembering who we are and what we are entitled to and why. Says Ramanujan (1991, p. 46):

Like chain letters, traditions have to be kept in good repair, transmitted, or beware, such tales seem to say, things will happen to you. You cannot hoard them.

...Daughters, wealth, knowledge and food must circulate, these are *danas*, or gifts, that, in their nature, must be given. Communities and generations depend on such exchanges and transfers. Stories are no different.

Stories have at least three kinds of work: to create meaning and validate action, to mobilize action, and to define alternatives. First, in their telling, stories develop meaning out of a set of events or experiences. Carr (1986, p. 4) terms narrative "our primary (though not our only) way of organizing our experience." He stresses the activist aspects of narrative, especially the role of leaders' speech that unites a group (or validates present action) by "express[ing] what it is about, where it has come from, and where it is going" (p. 156). A second part of the work of old and new stories is to mobilize action. While stories may be told by the elite to justify their use of power, they are also told by those who do not possess power in order to try to swing the balance and to remind themselves of the worthiness of their cause (Adas, 1992, p. 117; Rappaport, 1994). Foley (1990, p. 484), arguing for the importance of moral appeals in the mobilization of communities, states that "...an interpretation and evaluation of a situation of events..." is one way "...of creating space for action, of reconstructing reality in such a way that people can be moved to act." Stories are a vehicle for transmitting and making accessible a framework of meanings, that is, a discourse. A story and the discourse it bears reminds people of what they deserve and of their ability to act.

This does not necessarily mean that people will act. Feierman (1990, p. 32) reports Tanzanian peasant intellectuals who spoke against the authority and injustice of chiefs but who nonetheless accepted their authority in practice. Thus stories and action may not be consistent. Nonetheless, stories may be laying down a discursive base for later action, a point raised by Rose (1990).

The third work of stories is to present alternative ways of looking at things. "Genders" says Ramanujan (1991, p. 53), "are genres." So too, we shall see, are races and classes.

(a) *Audiences*

Audiences are important for spoken stories in a way that they are not for the printed word.⁴ Spoken stories demand a hearer, if only the speaker herself. Ong (1982, p. 74) suggests that the very act of listening to a speaker transforms the audience and speaker into a sort of unity. If Ong is right, then the community itself is a very important audience, the act of listening to its own stories being an enactment of cohesion. Carr (1986, p. 168) tells us:

we (the communal we, again for any given community) live an ongoing communal life projecting a future before us and retaining a past behind us which is being organized prospectively and retrospectively in a narrative fashion.

Thus, a story told (by whatever means) to outsiders, is likely also to be for home consumption. A familiar example is Geertz's (1973, p. 448) analysis of cock fights as "a Balinese reading of Balinese experience, a story they tell themselves about themselves."⁵ Telling stories to the home audience has to accomplish the important work of, as Carr puts it, self-maintenance. The plight of the widow in Ramanujan's (1991) tale told in an empty house is not one whit alleviated, but she relieves herself of her suffering. Telling the story can be, as we know, cathartic for the teller who is its only audience. So too, telling a story over and over again can confirm people's common memory that at one time they had access to land and resources or that their right to land and resources was acknowledged. Thus the story of the past serves as a marker for the present.

(b) *Reconstruction of the past*

Appadurai (1991, p. 470) reminds us, "that social life is constantly being rethought, rephrased, repositioned from the point of view of the teller." Hence, Davis and Starns (1989, p. 2) assert "the working principle that whenever memory is invoked we should be asking ourselves: by whom, where, in which context, against what?"

The validity of the Davis/Starns admonition is borne out when analysis of the stories told by communities reveals that details and emphases have been changed to meet contemporary needs. Examples come from all times and all places: the tales of Mycenaean minstrels during the Greek Dark Ages (Havelock,

1963, pp. 118–125); the retelling and assertion of ancient legal privilege in the English peasant uprising of 1381 (Justice, forthcoming, p. 63); similar appeals by protesting peasants in 19th century India (Ghura, 1989, p. 68); the reframing of the role of William the Conqueror in English history and of the nature of the US Civil War (Anderson, 1991, p. 201); and contemporary reworking of Luo history (Cohen and Odhiambo, 1989, pp. 28–29).

These examples are completely predictable. For not only is tradition clearly selective in its content (Williams, 1977, p. 115), but if stories are to serve the needs of the story teller's present circumstances, then they also must, in Williams's (1977, p. 116) words, "...connect with and ratify the present." Not necessarily, I should emphasize, the present only as it is, but also the present as the story-teller feels it ought to be (Fortmann, 1990). As Carr (1986, p. 114) observed "the social past may be called up explicitly as part of a larger picture in which present concerns and activities can be placed and in terms of which they are understood."

3. NARRATIVE AND PROPERTY

The importance of stories in the realm of property has been increasingly recognized during the last decade. Feminist legal scholars West (1988) and Rose (1990) have shown the importance of stories in shaping legal theory and action. Rose (1990) points out the reliance of the Grand Old Men of Property Theory on stories to hold the awkward bits of their theories together. Echoing other scholars, she imagines the possible role of stories in the emergence of common property regimes (1990, p. 55):

Thus the storyteller, by structuring the audience's experience and imagination, helps to turn her audience into a moral community. Moreover, by structuring our experience of events, the storyteller in effect constructs our memories and consciousness, so that we can draw on this new stock to act in the future.

Rose (1990, p. 56) concludes with the role of property-focused storytelling which begins in weakness, "telling tales to power." Peters (1987, p. 193) highlights the importance of the "power to define, to attribute meaning, and to assign labels" in struggles over property rights, power that can be exercised through storytelling. Roe (1991) stresses their importance in stabilizing the assumptions of decision making.

The state, elites and local residents have all been found to construct, reconstruct and selectively use history and custom in struggles over property. Perhaps the most exotic is Rappaport's (1990, p. 191) tale of the use of orally preserved memory from pre-Incaic

times as evidence in a colonial Peruvian court case involving disputed cocoa fields. Guha (1987) portrays the appeal of a wide variety of peasantries to "custom" — variously told — in their defense of usufructuary and common property rights against an enclosing state/elite. Berry (1992) recounts how official commitments to "native law and custom" in four British African colonies evoked deliberately selective retelling of custom and history in land disputes. Goheen (1992) reports conflicting histories recalled by two small groups locked in a struggle over access to land in Cameroon. Peel (1984, pp. 113, 115, 128) describes the role of stories of the past in Ijesha society including in land disputes as a means of "justifying interested claims," noting the tendency to "rework the past so as to make it appear that past practice has governed present practice."⁶ In Zimbabwe Cheater (1990) traces the construction and reconstruction of varying myths of communal landholding to buttress changing government policy and objectives over time.

In sum, in the telling of property claims, we would expect — indeed, predict — different versions of the same event told by different claimants and even altogether different stories, depending on the repertoire of preexisting stories to which claimants have access. Moreover, we would expect not only the telling of claims by the poor and dispossessed, but also by the powerful to preempt the discourse of the powerless (Scott, 1990, pp. 18, 45–47).

4. STRUGGLES OVER NATURAL RESOURCES IN ZIMBABWE

The Communal Areas which include 41.8% of the land are home to some 57% of the population, serving as a labor reserve for the urban areas and commercial farms (Moyo *et al.*, 1991, pp. 50, 58). The day-to-day residents of many Communal Areas are mostly women, children and old men, while most able-bodied men, some women and most of the educated work in town. Small farmers in the Communal Areas contributed significantly to the increase in the nation's maize production which prior to the 1992 drought had reached self-sufficiency (Rohrback *et al.*, 1990). The present discussion of natural resources focuses on trees. Individual trees and indigenous woodlands play a critical role in the rural livelihood system providing fuelwood, poles, wood for carving, medicine, browse and grazing, mulch, edible insects, fruit, nitrogen fixation, shade and religious sites. Some villagers sell fruit, medicine, poles and fuelwood commercially both within the communal areas and in nearby towns.

While all land in the Communal Areas of Zimbabwe is officially owned by the state, in practice a variety of property relations govern places in the Communal Areas where villagers obtain natural resources. There are two types of common property:

utilized common property, that is, communal woodlands, grazing areas and rivers, and protected common property, that is, sacred groves, sacred trees and sacred pools and springs. In theory (although not always in practice) protected common property is used only under strictly controlled circumstances if at all. In some parts of Zimbabwe individuals can establish (sometimes temporary) private rights to the products of specific trees in the commons (Nhira and Fortmann, 1991). In the two research sites, tree resources in the commons were available on a first-come first-served basis subject to certain restrictions such as the prohibition against cutting wild fruit trees and trees with religious or ceremonial importance (Fortmann and Nhira, 1992). There are also two kinds of individually-held property: homesteads and arable fields, and individually annexed common property. Homesteads and arable fields are generally allocated by the chief or *sabhuku*⁷ and are inheritable but not alienable. There is a growing practice of private individuals annexing parts of communal woodlands or grazing lands by enclosing them with a fence. Annexers may extend existing fences to enclose more and more land or simply fence in a whole new area. These annexations are not considered legitimate and often cause considerable local tension because they reduce the stock of natural resources available for common use.

Villagers also obtain natural resources outside the Communal Areas on privately owned commercial farms. As access to resources located on commercial farmland has diminished over time, natural resources in the Communal Areas have come under increasing pressure. The trees on which certain edible insects are found are most plentiful on the commercial farms. Loss of access reduces one source of protein in village diets. Likewise, straight poles of a sufficient diameter for building are harder to find as more and more people must turn to the Communal Areas to find them.

In theory, Communal Area residents have reasonably secure individual tenure to residential and arable plots and villages have fairly secure tenure over communal woodlands, grazing and riverline areas. In reality, security of individual tenure varies by gender, with women's tenure depending almost entirely on their relations with men (Fortmann and Nabane, 1992a). While a marriage is intact, some women have their own fields and control over the usufruct of trees they have planted. Nonetheless a widow does not inherit real property (including trees even if she has planted them) or family herds, although the heir is required to support her. Recent court enforcement of the support requirement has led to a change in practice regarding the rights of widows. Widows are now more likely to remain in the matrimonial homestead, even controlling the means of agricultural production, although they still depend on their ability to negotiate social shoals and the law. Any rejoicing in newfound security for widows would be premature.

Divorced women have no rights in any matrimonial property including land and trees (even the trees they have planted) in the matrimonial homestead regardless of the length of marriage or who is at fault in the divorce. Many a divorced woman spoke bitterly of watching her husband's latest wife harvest the fruit of trees she herself had planted and tended. If a divorced woman remains in the matrimonial village, she may retain rights in trees she planted in community woodlots. If she returns to her natal village, however, she loses rights to these as well. Women's rights to resources in the commons are not constrained by their marital status but are based on residence.

Villages may also take actions that interfere with individual tenure. One village in this study decided to establish rotational paddocks, pastures which are fenced and grazed according to a predetermined system. When this was done, individual farmers lost their arable plots and were allocated others.

Security of village tenure also varies. With the official state emphasis on a unified Zimbabwean national identity ("we are all Zimbabweans," as opposed to the divisive tribal identities fostered by the colonial regime), villagers have been less able to defend their territory and resources against incursions by Zimbabweans from the outside (Wilson, 1987). Villages have also lost land or been moved (sometimes burned to the ground) as the result of new government policies or long standing disputes with the state over boundaries. The case of Bende Gap (Cahi, 1992; Nhira and Fortmann, 1991) illustrates the state as story teller justifying why the people had to be moved. Government officials tell a story of careful professional boundary surveys, while villagers tell a story of sloppy surveys which strayed into their grazing areas and usurped their land. The state tells stories of villagers whose agricultural and grazing practices have led to deforestation and land degradation. The villagers tell stories of broken promises and government terror tactics. The role of the state in narratives is returned to below.

Research was conducted in two villages (as defined by the local people, not the government) approximately 30 kilometers apart lying in two different agro-ecological zones.⁸ Chamitimirefu, the ecologically better endowed site, is separated by a large river from a block of large- and small-scale commercial farms. For most of its length this boundary is marked by barbed wire fences along the river bank. On the boundaries of the large-scale farms, the fences are generally constructed of metal poles with four strands of wire and tend to be on the village side of the river. The fences bounding the small-scale farms tend to have wooden poles, fewer strands of wire and to be located on the farm side of the river. Although its soil is better, its rainfall more reliable and its trees taller, the rolling area around Chamitimirefu is dotted with large outcrops of rocks which constrain agricultural

possibilities. Chamitimirefu was settled more recently than Mombe by people displaced by the alienation of land for commercial farms for whites including both the land across the river and land several hundred kilometers to the south.

Mombe, on a triangle of gently sloping land between the confluence of two small rivers, lies about five kilometers as the crow flies from a block of commercial farms. The banks of the northern river are unfenced, but the grounds of the secondary school on the northern side of the river are surrounded with a three-strand barbed wire fence with metal poles. A newly erected barbed wire fence with metal poles on the southern side of a stretch of the southern river marks the grazing lands of an adjacent village. The members of the dominant lineage of Mombe have a clear foundation story. The area was settled by the grandfather of the five current *sabhukus* in 1918, the present lines⁹ being established in 1936.

In both sites most able-bodied men work in town, while women and old men practice rain-fed agriculture, raising maize, peanuts, vegetables, mangos, lemons, guava and cattle both for domestic use and for sale. Land is plowed with teams of oxen. Drinking water in both sites is obtained from shallow wells, while cattle are watered in the rivers and in seasonal catchments. The surrounding countryside in both places is a savannah woodland, dominated by two tree species, *Brachystegia spiciformis* and *Terminalia sericea*.

One of the first things that strikes the visitor to these two sites is the amount of fencing going on — much of it post-independence fencing.¹⁰ First, black and white commercial farmers are putting up stout fences and hauling trespassers off to the police. Second, the communal farmers are fencing in paddocks and residential areas, sometimes at a massive scale. Third, villages are fencing. The village next to Mombe fenced along the river to demarcate its grazing scheme and to keep the neighboring cattle out.

This post-Independence fencing continues an intermittent process that began in the 1980s. Three recent periods particularly concern us. Whatever its legal status, a good deal of the land around Chamitimirefu, and to a lesser extent around Mombe, was in fact available for use, if only by poaching¹¹ for a long time. Beginning in the 1930s, the small-scale commercial farms were established adjacent to Chamitimirefu and were fenced. Poaching was still possible and continues to this day, but the terms of access for local villagers has become more difficult. In the 1940s farms near Mombe were given for the settlement of white soldiers from Britain and its colonies. Again the terms of access for local villagers were made more difficult. Finally, as described in the introduction, the major white landowner adjacent to Chamitimirefu fenced his land in 1966.

There is no easy way to restore access to the commons. Power relations in the two villages often seem to preclude confronting the individuals who have seized common property for their own exclusive use, although there is private grumbling and undoubtedly private poaching. The matter appears too trivial for state action. In some cases adjacent villages have chosen to divide up the commons rather than manage it jointly. Poaching goes on there too — indeed I have joined village women in poaching wood from the grazing land of the village on the other side of the southern river in Mombe. So that leaves the commercial farms. Historically, natural resources on the farms served to supplement the common property resources of the Communal Areas. Once they were withdrawn, common property resources were less easy to manage because of increased demand. Clearly it would benefit local people if they could regain legal access to the resources that have been withdrawn. In the meantime people continue to poach on the commercial farms. There is a well-worn path which goes right up to, through and beyond the stout post-Independence fence on one of the farms. Nine percent of the tree locations where people in the two villages said they got edible insects in 1990 were on the commercial farms. Moreover, small entrepreneurs persist whose sole supply of wood is on the farms.

The greatest land struggles in Zimbabwe center on the commercial farms. The following section shows the use of stories to assert claims and the legitimacy of claims to commercial farmland both by villagers and by the white commercial farmers. The story tellers variously lay down a record, create a discourse which favors their claim, render invisible inconvenient bits of history, and try to deceive the listener about what is at issue.

5. TWO STORIES

(a) *Mythical gates: claiming land with stories of the past*

Villages in the research sites tell two kinds of resource-claiming stories. For example the first type began this article. There are many versions of this story, reflecting the circumstances of different farms, farmers and villagers. They all have a storyline that goes something like this: We villagers have a right to use this land now because even the previous owner (subtext: whom we all know to have been in opposition to our best interests because he was white) recognized our rights and let us use the land (provided a gate, gave us unprocessed tobacco, let us gather firewood). If someone who was an "enemy" understood and did that, how can one of "us" (i.e. the new black owners) fail to do likewise?

It is interesting that the villagers in Chamitimirefu do not recount their victorious seizure of the fences, perhaps because in the end the fences stood against them. Rather, they recount a different kind of victory, the recognition of their rights in the form of a gate.¹²

The second type of story told by villagers has to do with the promises made by the liberation fighters (the "comrades") during the liberation war:

They told us we would get the farms after Independence. They told us all the whites would go north of the river and we would get all the land south of it.

People in the research area, like people across the countryside, suffered greatly during the liberation war (see Staunton, 1990) — and they have not received the resources they were promised by the liberation forces in return for their suffering. Villagers tell these stories to remind others (and themselves) that they have a legitimate ongoing claim to the land denied them.

(b) *Parables of good stewards: claiming land with stories of good deeds*

The white commercial farmers also tell a story to legitimate their claim to the land, a story of ecological stewardship. Their stories have two themes — proclaiming their own natural resource stewardship and portraying villagers as lacking in that stewardship. These stories feed directly into and on the "ecological crisis" discourse so in favor among international donors.

The shift from the use of wood to coal for curing tobacco and tree planting are important indicators of stewardship in these stories.¹³ One white commercial farmer, who took pride in the 10,000 eucalyptus trees he was in the process of planting, explained it was not more economical to use coal, but that he was doing it to conserve the trees. "It's a lot cheaper to burn timber than coal. But I'm not going to make my farm go derelict to save money." Another farmer who also cured tobacco with coal proudly recounted that two rotations of eucalyptus he had planted had already been cut (instead of indigenous woodland) to build improved housing for farm workers and for use as firewood. In addition he had been quite successful in growing indigenous trees.

Some white commercial farmers tell stories that portray themselves as the defenders of trees and avengers of their destruction. A young farmer showed me the stumps of two large trees, recounting how he had fired the worker who had cut them down. Other narratives simply portrayed villagers as environmentally unconcerned. One farmer characterized the profligacy of villagers' cutting practices. "When people took trees, they took everything...they don't worry about selective felling." Another farmer

remarked, "I don't understand why [the communal area people] don't do more to help themselves by planting gum [eucalyptus]." And yet another, "It's hard to get people to plant gum trees [in the communal area]."¹⁴

The double duty of the farmers' ecological discourse was illustrated in a public lecture to a well-attended meeting of a local environmental society in the capital city. Delivered to an all-white audience whose members were almost all well over 50 years old, the lecture consisted of slides of rare, large or old trees. Eleven of the 34 trees shown were associated with the victories, heroes or formative events of the colonial regime or with white farmers who had preserved a particular tree. White-owned farms were identified as the sites of some trees. The lecture thus managed simultaneously to celebrate the colonial regime and the stewardship of trees by white farmers.

The white commercial farmers, in other words, tell a story of an encroaching desert¹⁵ in which their farms are the only islands of resource stewardship. Like the villagers' mythical gates, this desert does not actually exist in the research area where the majority of villagers plant trees, sometimes in large numbers (Fortmann and Nabane, 1992a and 1992b).¹⁶ But this image of desolation serves the farmers' discursive strategy of claiming land through stewardship.

The power and persistence of this discursive strategy is indicated by prevalence of the observation that "you know that you are in the Communal Areas when the tarmac and trees stop," even though there is evidence that some commercial farms are as badly cut over as the Communal Areas. One commercial farmer observed that along the road in the commercial farms, "The trees look good but when you get inside, there's nothing." Similarly, when I flew over my field sites, one of my flying companions remarked that the farms for the most part looked no better than the Communal Areas. Some (although by no means systematic) evidence suggests that the biodiversity of tree species on commercial farms and Communal Areas is very similar. Thus the discourse persists despite evidence to the contrary.

(c) *The complex role of the state*

The state has entered these stories in various ways — as teller, listener and backdrop. As Rappaport (1990, p. 16) has noted, the character of the state affects the nature of the narrative used against it. The state, of course, is multi-faceted and multi-voiced, telling and generating multiple stories. Thus the role of the state, the stories it tells and the stories it elicits depend on which "state" is the actor. In addition to being a constant background presence, the state appears actively in three faces in the stories recounted

here. When confronted by the state in the form of land-owning high government and military officials, villagers' story is one of how white farmers recognized their entitlement to use resources, rather than a story of defiance. The state in the form of the liberation fighters and resettlement officials has told a story of entitlement to white-owned commercial farm land that resonates with villagers' own aspirations. The state in the form of the Forestry Commission has told stories of ecologically endangered land and ecologically dangerous villagers that resonate with the stories of commercial farmers. Thus even when the state is not a direct actor, it may influence the discursive strategies of others.

(d) *The stories of the farmers and the villagers compared*

We have seen that people who reside just across a river from each other tell different stories about the same place, the same time, even the same event. While these differences stand out in especially clear relief in a society strongly stratified both racially and economically such as Zimbabwe, they are a common phenomenon (Davis and Starns, 1989; Ramanujan, 1991). In addition to their content, the stories told by villagers and farmers differ in three other ways: the voice of the teller, the time frame, and the audience.

(i) *The voice of the teller*

The farmers' stories differ from the villagers' in that "we" is a forbidden voice for farmers. Farmers told their stories in a personal voice — "I" planted 10,000 eucalyptus trees. Farmers may well think "we," but they cannot say it publicly. The white colonial community to which most farmers belonged can no longer be imagined publicly (see Anderson, 1991). The farmers' voice must thus be one of personal ecological virtue. Here the story-line is both a recounting of personal ecological action (such as tree planting) and the implied necessity of defense against ecologically dangerous villagers.¹⁷

In sharp contrast, the villagers tell their story in a collective voice — "we" used the land. This is not to suggest for a moment that the villagers' "we" is not riven by lines of class, gender, age and religion. It does mean that many village collective identities can be spoken aloud.

(ii) *Time frame*

Villagers are able to draw on a longer past than farmers. The story told by villagers begins in the unspecified past (although we know that the farm in the first story was alienated around the turn of the century and the fence was built in 1966) and ends with the departure of the former white farm owner. The stories told by the farmers (with a single exception) begin in

the near present, neatly avoiding decades of tree cutting for tobacco clearing and the years of colonial oppression. The villagers' story, in other words, has ended long before the farmers' has begun. Villagers may connect to the collective past, indeed to a resurrected past, long denied them under the twisted histories perpetrated by the colonial regime. Commercial farmers no longer may make a connection to the colonial past because their narrative of their past is now discredited. Farmers can only construct a highly circumscribed personal past in which they were purportedly stewards of the land.

(iii) *The audience*

The audience to whom these stories are told is important. First, some audiences are connected to policy levers. Second, the audience determines the likelihood that a particular story will be "heard," since a story that fits the stories the audience already knows is more easily received (Hall, 1984). Moreover, who tells a story may determine the audience, and therefore determine whether a story can be heard. Third, the audience may have the power to frame the story.¹⁸

In the case at hand, both the villagers and the farmers were telling stories primarily to themselves and, of course, to the passing researcher. But telling stories does not indicate passivity on anyone's part. In clear everyday acts of resistance (Scott, 1985) the villagers continue to use commercial farm resources and they keep alive the stories of the historical recognition of their claims. The farmers (and now the villagers) maintain their fences. No one has surrendered.

The villagers' stories strategically assert obligation on the part of farm owners. In striking contrast to the Tangwena people's emphatic grounding of their claims in ancestral ownership (Moore, 1994), villagers in the study area hold up a narrative of the concessions of white former commercial farm owners as the standard against which present claims should be judged. This tactic parallels that of the residents of California forest communities who imply that customary rights ought to be the standard by which their claims to forest resources should be judged (Fortmann, 1990). The villagers in Chamitimirefu do not assert that this land was always theirs — perhaps in part because some of them had come from elsewhere some 40 years earlier. But it may also be that such an argument would not give them any purchase on the obligations of the present [black] owner of the land, who could say that the obligation to the greater African community has been discharged through his ownership.

While the villagers in the study sites had only a researcher as an outside audience, villagers elsewhere have been able to try to initiate a process of renegotiation through the local and national press. Although the government-owned media are rarely outlets for angry peasant voices, the nongovernmental press has,

since Independence, been remarkably unfettered.¹⁹ Thus the people of Bende Gap have told their story in the nongovernmental press as part of their struggle over land with the Forestry Commission (see Mutambara, 1990; *Parade*, 1990; Cahi, 1992).

Villagers lack access to the international press, who are generally too taken with national politics and natural disaster to pay much attention to struggles at the local level. This is probably of little moment, for the local press is a more logical venue for launching a renegotiation attempt and is probably more likely to pay sustained attention to its outcome. In addition, as the experiences of Amazonian Indians have shown, international exposure is not an unmitigated blessing.

While commercial farmers, who are more likely to be linked with access to a wider print media, try to tell their story of ecological virtue more widely ostensibly to ecological audiences. In the case of the lecture mentioned above, the audience was both the forbidden "we" (white Rhodesians) and a broader ecological community. Farmers' stories of tree planting and protecting (and other acts of ecological virtue such as the Save the Rhino Campaign) are framed to resonate with globalized images of Africa and international environmental concerns. It is no accident that the white farmers' story fits into the colonial narrative of the European "gift of civilization" to Africa. The counternarrative of African environmental awareness and technical competence to act on that awareness does not fit the hegemonic colonial and now postcolonial narrative of African environmental degradation²⁰. Nonetheless, the preoccupations of international journalists and the history of the white colonial regime leave few if any audiences for the farmers' carefully constructed story in the international press. While white farmers can and do publish their stories in the local "white" press, this is just another form of telling stories to themselves.

In the end, perhaps we come round to Bourdieu's understanding that the power of discourse lies in the "legitimacy or authority with which it is backed" (Bourdieu and Eagleton, 1992, p. 111). White farmers' discursive strategy tries to shift part of the legitimacy of their property claims onto ecological grounds. Part of villagers' strategy is to tell stories asserting historical recognition of the legitimacy of their claims. When they tell these stories to themselves, they keep alive a sense of the right to and need for renegotiation of property rights. When they succeed in telling them to others (as through the local press), they may ignite the process of renegotiation.

6. CONCLUSIONS

Stories turn out to be important in understanding struggles over property in three ways. First, stories lay

down a record of claims and a justification of those claims which are useful data for the outside analyst. Second, stories serve the claimants by strengthening them in their resolve as to the legitimacy of their claims. Third, if the story tellers are strategically placed, their stories will diffuse into a wider societal discourse which will strengthen their hand in waging their struggle. Thus telling stories is part of the process of renegotiating property rights, a strategy that for some story tellers may have only long-term payoff. Stories, then, are part of what Peters (1992, p. 431) calls the "how" of social and cultural transformation."

This article has focused on stories told by white commercial farmers and black villagers, only one segment of insider/outsider relations in struggles over

land and natural resources in Zimbabwe. It has touched briefly on the stories told by villagers and government officials against each other. It has not told the stories of black commercial farmers (who in the study sites were high-ranking government officials and military officers), nor the stories that are told within villages between rich and poor, men and women, or youth and elders. Nor, with the exception of the brief reference to Bende Gap, has it given much attention to the mechanisms by which stories might move beyond everyday resistance and the maintenance of claims to active renegotiation. It has not traced how these stories may have changed over time nor how changing conditions might be mapped in these stories. In the words of the endless story of scholars, that is another story.

NOTES

1. The Zimbabwe case material was collected during a year of research (1991-92) in two villages. All place names are pseudonyms. The two sites in which the research was conducted are described below.

2. Race remains an issue in Zimbabwe as will be seen in this paper in which the commercial farmers are almost all white and the villagers are all black. I have focused on white commercial farmers in this paper because unlike most black commercial farmers they perceive themselves as vulnerable to having their land confiscated. This was particularly true during the time of the research when the government had announced a policy of mandatory land sales at government-set prices.

3. *Harati* are edible caterpillars found on the *mukarati* tree (*Burkea africana*).

4. Ong (1982, p. 74) makes the telling observation that "There is no collective noun or concept for readers corresponding to 'audience.'"

5. More accurately it is a story that certain Balinese tell themselves about themselves.

6. Peel (1984) makes the point that this reworking is by no means limited to oral cultures.

7. Literally the holder of the [tax] book, *subhukus* are local level officials established by the British but now generally considered to be "traditional" leaders.

8. Land in Zimbabwe has been classified into four "natural regions" or agro-ecological zones based primarily on soil type and rainfall. The lower the number in this classification, the better the land. Chamitimirefu falls on the boundary of Natural Regions II and III; Mombe in NR III.

9. British colonial policy insisted on villages organized in straight lines. "Malines" remain a topic of deep discontent.

10. Peters (1992) points out the symbolic importance of

fences as a "manifest display of permanent division." It should be noted, however, that it is possible even for matronly researchers to climb over, under or through the fences in both sites.

11. The term poaching is used widely in Zimbabwe to describe communal area residents' illegal use of natural resources on commercial farms or state land. While commercial farmers and government officials consider poaching in a negative light, villagers generally consider it a legitimate albeit illegal form of counter-appropriation of resources wrested forcibly from their forebears. Villagers quite cheerfully use the word "stealing" when describing these activities in English.

12. Interestingly, one white former commercial farmer told a parallel story of recognition. A village elder, he said, told him to paint his fence wire so it could be recognized and returned to him if it was stolen. Subsequently it was stolen and the painted wire returned to him, the legitimacy of his fence affirmed. Not surprisingly, no current white farmers told such stories.

13. The thought of burning coal as environmentally sound may come as a surprise to many readers. The use of fossil fuels and the creation of air pollution obviously does not enter into the commercial farmers' equation. Rather their stewardship narrative pivots on the symbolic importance of trees.

14. As will be discussed below, the statements on gum planting are demonstrably wrong. Indeed in Mombe I frequently got my bearings from an enormous gum tree which dominated the landscape around it for a long distance. Farmers' narratives about the Communal Areas are particularly interesting because many farmers never set foot in them.

15. Others tell this story also. For example, the full color photo in an advertisement by the Forestry Commission in the government-owned newspaper portrayed the Communal Areas as a barren desert (Forestry Commission, 1991).

16. Tree planting by rural residents is found nationwide (Nhira and Fortmann, 1991).

17. Only one farmer departed from the second story line. He quite simply attributed the bulk of deforestation in Zimbabwe to white tobacco farmers. His view was consistent with villagers who attribute deforestation to the actions of the colonial regime which harvested trees for mine timbers and railway sleepers, gave commercial timber concessions to whites, and forced villagers to clear natural forest for exotic plantations and to rebuild their houses in straight lines, necessitating both clearing land and cutting roof poles (McGregor, 1991). Some early colonial observers also decried the ecological devastation caused by tree cutting by mining interests (Jennings, 1931).

18. This insight is from Jim Scott (personal communication 1994) who relates how the discovery of the "winning story" by Cambodian refugees to Thailand resulted in a short time in nearly uniform stories being told to refugee camp officials.

19. This is in sharp contrast to the era of white minority rule when the press faced draconian restrictions (Brian Murphy, pers. comm. 1993).

20. This statement might seem contrary to the recent enthusiasm for community-based natural resource management. This does not mean, however, an equal enthusiasm for local voices. For example, in a recent book entitled *Voices from Africa: Local Perspectives on Conservation* (Lewis and Carter, 1993), nearly half of the 17 chapters had white authors.

REFERENCES

- Adams, Jonathan S. and Thomas Q. McShane, *The Myth of Wild Africa: Conservation without illusion* (New York: W. W. Norton, 1992).
- Adas, Michael, "From avoidance to confrontation: Peasant protest in precolonial and colonial Southeast Asia," in Nicholas B. Dirks (Ed.), *Colonialism and Culture* (Ann Arbor, MI: University of Michigan Press, 1992), pp. 89-126.
- Anderson, Benedict, *Imagined Communities* (London: Verso, 1991).
- Appadurai, Arjun, "Afterword," in Arjun Appadurai, Frank J. Karom and Margaret A. Mills (Eds.), *Gender, Genre, and Power in South Asian Expressive Tradition* (Philadelphia, PA: University of Pennsylvania Press, 1991), pp. 467-476.
- Berry, Sara, "Hegemony on a shoestring: Indirect rule and access to agricultural land," *Africa*, Vol. 62, No. 3 (1992), pp. 327-356.
- Bourdieu, P. and Terry Eagleton, "In conversation: Doxa and common life," *New Left Review* (1992), pp. 111-121.
- Bruce, John, Louise Fortmann and Calvin Nhira, "Tenures in transition, tenures in conflict: Examples from the Zimbabwe social forest," *Rural Sociology*, Vol. 58, No. 4 (1993), pp. 626-642.
- Cahi, Jackie, "The Bende Gap people of Nyanga District" (Harare: Catholic Commission for Justice and Peace in Zimbabwe, 1992).
- Carr, David, *Time, Narrative and History* (Bloomington, IN: Indiana University Press, 1986).
- Cheater, Angela, "The ideology of 'communal' land tenure in Zimbabwe: mythogenesis enacted?," *Africa*, Vol. 60 No. 2 (1990), pp. 188-206.
- Cohen, David William and E. S. Atieno Odhiambo, *Siaya: The Historical Anthropology of an African Landscape* (Athens, OH: Ohio University Press, 1989).
- Davis, Natalie Zemon and Randolph Starns, "Introduction," Special Issue on Memory and Counter Memory, *Representations*, Vol. 26 (1989), pp. 1-6.
- Feierman, Steven, *Peasant Intellectuals: Anthropology and History in Tanzania* (Madison, WI: University of Wisconsin Press, 1990).
- Foley, Michael, "Organizing, ideology and moral suasion: Political discourse and action in a Mexican town," *Comparative Studies in Society and History*, Vol. 32, No. 3 (1990), pp. 455-487.
- Forestry Commission, Advertisement, *Sunday Mail* (December 15, 1991), p. 5.
- Fortmann, Louise, "Locality and custom: Non-aboriginal claims to customary usufructuary rights as a source of rural protest," *Journal of Rural Studies*, Vol. 6, No. 2 (1990), pp. 195-208.
- Fortmann, Louise and Nontokozo Nabane, "The fruits of their labor: Gender, property and trees in Mhondoro District," NRM Occasional Paper 7 (Harare: Centre for Applied Social Sciences, University of Zimbabwe, 1992a).
- Fortmann, Louise and Nontokozo Nabane, "Poverty and tree resources in Mhondoro District: A research note," NRM Occasional Paper 8 (Harare: Centre for Applied Social Sciences, University of Zimbabwe, 1992b).
- Fortmann, Louise and Calvin Nhira, "Local management of trees and woodland resources in Zimbabwe: A tenurial niche approach," Occasional Paper No. 43 (Oxford: Oxford Forestry Institute, 1992b).
- Geertz, Clifford, *Work and Lives: The Anthropologist as Author* (Stanford, CA: Stanford University Press, 1988).
- Geertz, Clifford, "Deep play: Notes on the Balinese cockfight," in Clifford Geertz, *The Interpretation of Cultures* (New York: Basic Books, 1973), pp. 412-453.
- Goheen, Mitzi, "Chiefs, sub-chiefs and local control: Negotiations over land, struggles over meaning," *Africa*, Vol. 62, No. 3 (1992), pp. 389-412.
- Guha, Ramachandra, *The Unquiet Woods: Ecological Change and Peasant Resistance in the Himalaya* (Delhi: Oxford University Press, 1989).
- Hall, Stuart, "The narrative construction of reality: An interview," *Southern Review*, Vol. 17, No. 1 (1984), pp. 3-17.
- Havelock, Eric A., *Preface to Plato* (Cambridge, MA: Belknap Press, 1963).
- Jennings, Captain, Letter from Captain Jennings and Letter dated 24/8/31 to Minister of Justice about Commission. National Archives of Zimbabwe File ZAZ2/2/1 (1931).
- Justice, Stephen, *Writing and Rebellion* (Berkeley, CA: University of California Press, forthcoming).
- Lewis, Dale and Nick Carter (Eds.), *Voices from Africa:*

- Local Perspectives on Conservation* (Washington, DC: World Wildlife Fund, 1993).
- McGregor, J., "Coping with deforestation: Local strategies and state policy in Zimbabwe's communal lands," Seminar presentation (Loughborough: Loughborough University, Department of Geography, 1989).
- McGregor, J., "Woodland resources: Ecology, policy and ideology: An historical case study of woodland use in Shurugwi Communal Area, Zimbabwe," PhD Dissertation (Loughborough: Loughborough University of Technology, 1991).
- Moore, Donald, "Contesting terrain in Zimbabwe's Eastern Highlands: Political ecology and peasant resource struggles," *Economic Geography*, Vol. 69, No. 4 (1994), pp. 380-401.
- Moyo, Sam, Peter Robinson, Yemi Katerere, Stuart Stevenson and Davison Gumbo, *Zimbabwe's Environmental Dilemma: Balancing Resource Inequities* (Harare: ZERO, 1991).
- Mutambara, J., "Timber crowding us out, say Nyanga's landless," *Parade* (December, 1990), p. 29.
- Nhira, Calvin and Louise Fortmann, "Local control and management of forest and environmental resources in Zimbabwe: Institutional capacity. Manuscript (Harare: Forestry Commission, 1991).
- Ong, Walter J., *Orality and Literacy: The Technologizing of the Word* (Routledge: London, 1982).
- Palmer, Robin, *Land and Racial Domination in Rhodesia* (London: Heinemann Educational Books, 1977).
- Parade*, "Land plan: New doubts" (December, 1990), pp. 20-25.
- Peel, J. D. Y., "Making history: The past in the Ijesha present," *Man*, Vol. 91, No. 1 (1984), pp. 111-132.
- Peters, Pauline, "Struggles over water, struggles over meaning: Cattle, water and the state," *Africa*, Vol. 54, No. 3 (1984), pp. 29-49.
- Peters, Pauline, "Manoeuvres and Debates in the Interpretation of Land Rights in Botswana," *Africa*, Vol. 62, No. 3 (1992), pp. 413-434.
- Peters, Pauline, "Embedded systems and rooted models: The grazing lands of Botswana and the commons debate," in Bonnie J. McCay and James M. Acheson (Eds.), *The Question of the Commons: The Culture and Ecology of Communal Resources* (Tucson, AZ: University of Arizona Press, 1987), pp. 171-194.
- Ramanujan, A. K., "Toward a Counter-System: Women's Tales," in Arjun Appadurai, Frank J. Karom and Margaret A. Mills (Eds.), *Gender, Genre, and Power in South Asian Expressive Tradition* (Philadelphia, PA: University of Pennsylvania Press, 1991), pp. 33-55.
- Ranger, T. O., *Revolt in Southern Rhodesia 1896-7: A Study in African Resistance* (London: Heinemann, 1967).
- Rappaport, Joanne, *Cumbe Reborn: An Andean Ethnography of History* (Chicago: University of Chicago Press, 1994).
- Rappaport, Joanne, *The Politics of Memory: Native Historical Interpretation in the Colombian Andes* (Cambridge: Cambridge University Press, 1990).
- Roe, Emery, "Development narratives, Or making the best of blueprint development," *World Development*, Vol. 19, No. 4 (1991), pp. 287-300.
- Rohrbach, D. C., J. Stack, B. Hedden-Dunkhorst and J. Govereh, "Agricultural growth and national food security," in *Integrating Food, Nutrition and Agricultural Policy in Zimbabwe: Proceedings of the First Consultative Workshop Juliusdale* (Harare: University of Zimbabwe, 1990).
- Rose, Carol M., "Property as storytelling: Perspectives from game theory, narrative theory and feminist theory," *Yale Journal of Law and the Humanities*, Vol. 2, No. 1 (1990), pp. 37-57.
- Scott, James C., *Domination and the Arts of Resistance* (New Haven, CT: Yale University Press, 1990).
- Scott, James C., *Weapons of the Weak: Everyday Forms of Peasant Resistance* (New Haven, CT: Yale University Press, 1985).
- Staunton, Irene (Ed.), *Mothers of the Revolution* (Harare: Baobab Books, 1990).
- Thompson, John B., *Studies in the Theory of Ideology* (Oxford: Oxford University Press, 1984).
- Trinh, T. Minh-ha, *Woman, Native, Other* (Bloomington, IN: Indiana University Press, 1989).
- West, Robin, "Economic man and literary woman: One contrast," *Mercer Law Review*, Vol. 39, No. 3 (1988) pp. 867-878.
- Williams, Raymond, *Marxism and Literature* (Oxford: Oxford University Press, 1977).
- Wilson, K., "Research on trees in the Mavihwa and surrounding areas: A report prepared for ENDA Zimbabwe," Mimeo (Harare: ENDA Zimbabwe, 1987).
- Zagacki, Kenneth, "Marginalization, the body, and empowerment: The Rhetoric of the Obese and Little People in America," in Andrew King (Ed.), *Postmodern Political Communication: The Fringe Challenges the Center* (Westport, CT: Praeger, 1992), pp. 31-56.

7. Ernst, T.M. 1999. **Land, Stories and Resources: Discourse and Entification in Onabasulu Modernity.** *American Anthropologist* 101(1):88-97. Reproduced by permission of the American Anthropological Association.

THOMAS M. ERNST
Anthropology and Sociology
Charles Sturt University
Wagga Wagga, New South Wales 2678
Australia

Land, Stories, and Resources: Discourse and Entification in Onabasulu Modernity

Resource development may involve codifications of social organization that alter preexisting arrangements. This is the case in Onabasulu society today, impacted by Chevron's petroleum extractions nearby and the codifications of collective life introduced by multinationals and the State of Papua New Guinea alike. Located on the Great Papuan Plateau of Papua New Guinea, Onabasulu "clans" are largely an artifact of a certificate-based incorporation process and do not preexist the era of petroleum development. This "entification" of clans is matched by an entification of ethnic groups, which previously enjoyed soft (or "thick") rather than hard (or sharp) edges and boundaries. Various discourses—lineage histories, myths, other stories—are best viewed as instruments that political actors—the Onabasulu as a people, various clans, various individuals—use to embrace, contest, or manipulate the new codifications as these actors strive to position themselves competitively in relation to resources in an era of nationalist and capitalist penetration. "Land, Stories, and Resources" argues for a discourse-centered *political ecology* of Onabasulu modernity, one that recognizes the political and discursive roots of human-land relations in an unfolding and open-ended history predicated on an emerging politics of difference within a globalizing context. [*political ecology, discursive practices, cognized models, Onabasulu (Papua New Guinea)*]

Roy Rappaport's earliest work on human ecology and ritual reacted to then common functionalist sociological perspectives on religious behavior—that is, those that "have had as an analytic goal the elucidation of events, processes, or relationships occurring *within* a social group of some sort" (Rappaport 1968:1, emphasis in the original). A quote from Homans is presented as representative of this received perspective on ritual. It begins: "Ritual actions do not produce a practical result on the external world—that is one of the reasons why we call them ritual" (Homans 1941:172, cited in Rappaport 1967:17 and 1968:2). It is contra this statement that much of Rappaport's earliest work on ritual is founded. Incidentally, most participants in most rituals would certainly strongly disagree with Homans as well.

In the impulse to widen the effective domain of ritual's efficacy, *Pigs for the Ancestors* was more or less "innocent" of the complexities of the meaningful lifeworld of human beings (relegated here to the as-yet undeveloped notion of cognized models [Rappaport 1968:237ff.] and of the structures of historically constructed human social worlds (see introduction, this issue). Even at a later date, when Rappaport developed more fully his perspectives on cognized models, and importantly eschewed the predominantly textual perspectives on meaning that were current, the constitutive powers of discursive practices such as sto-

rytelling—where, as is common in Niuginian cultures, there is argument and audience involvement in the construction of the narrative—are ignored. In actual fact, the ritual impact upon which Rappaport would come to dwell (1979) was Durkheimian, a matter of preserving the status quo in a process of social reproduction. Thus, Rappaport uses the metaphor of a journal writer as opposed to the participant in a fixed liturgy to oppose constitutive to reproductive aspects of reflexivity. "To invoke a metaphor, he [the journal writer] must be an architect as well as a builder. One who offers himself to ritual for fashioning, in contrast, is not required to invent himself. To continue metaphorically, he needn't design the house in which he is to live. All he need do is move into the ritual and into the conventional definition of self it specifies" (1980:181–182).

In the following I discuss a new politics of difference, announced and contested in storytelling practices, which has emerged in the present context of multinational resource development among the Onabasulu of the Mt. Bosavi region of the Great Papuan Plateau (see Figure 1). Storytelling is performance by all parties concerned, but it is messy, contested, and full of ambiguities, and it lacks the imperative clarity of liturgical language and performance. For these reasons, storytelling can be a highly *politicized* discourse. In the following, I am concerned with the stories

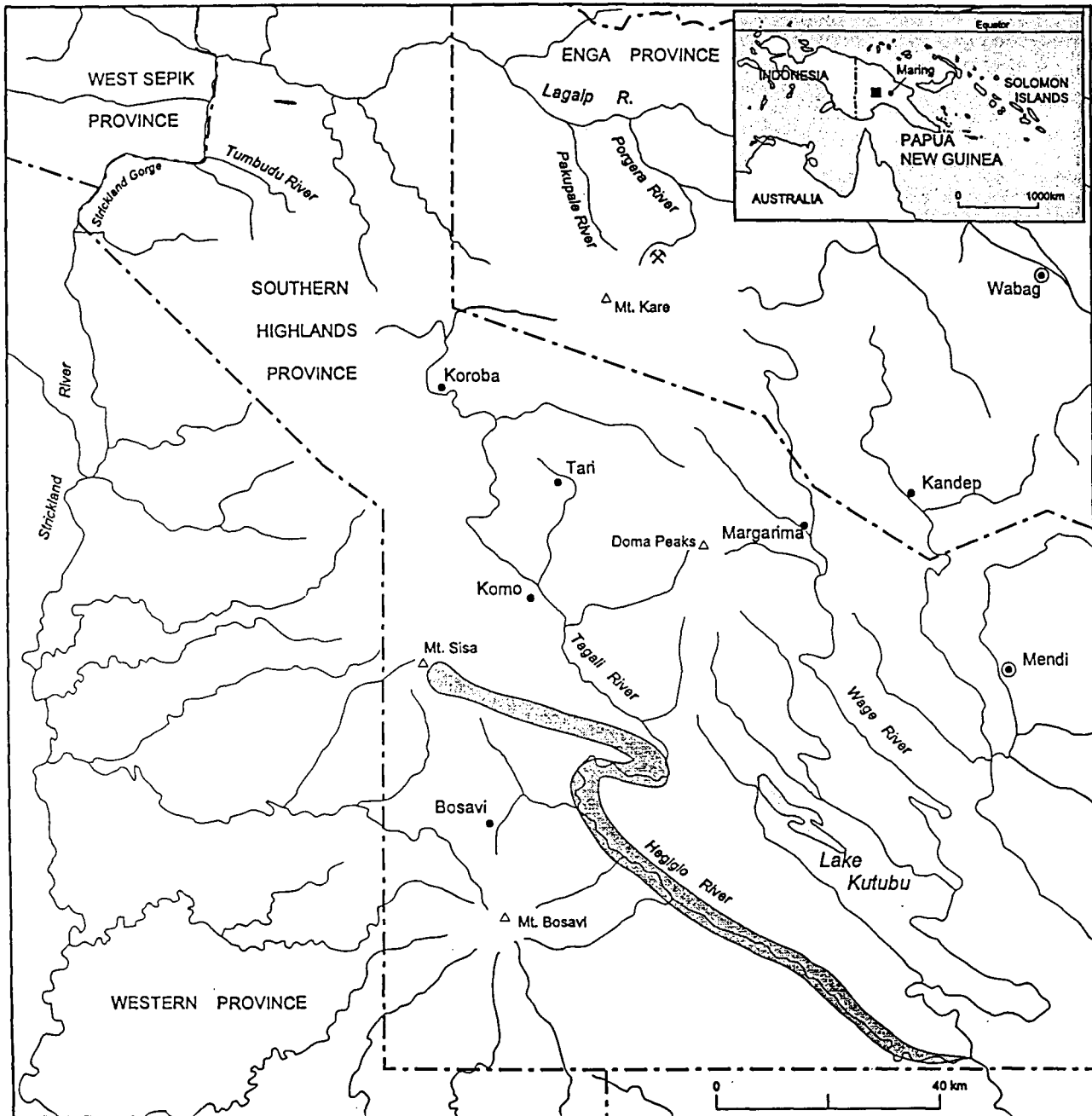


Figure 1. The Onabasulu-Huli-Ipili region of the Papua New Guinea highlands, together with the Onabasulu mythic snake (adapted from Biersack 1995:2 and Frankel 1986:12).

and storytelling I found among the Onabasulu during a recent trip to the area and their environmental politics. In sum, these stories are designed to stake a claim to a crucial resource, oil, in an era of multinational resource development.

While I am not dealing here with major processes of social transformation, there is an indication of the potential

for serious change despite the appearance of remarkable continuity. The appearance of continuity, as well as the potential for change, are both bound up with the word *entification*: the process of making "entities" or things from what have been contingent categories.¹

Entification is perhaps stronger and more specific than a tendency to reify. Additionally, it is preferable to the term

reification as it does not carry the conceptual connotations of "false consciousness" that have been part of many discussions of reification in the social sciences. As I use the term here, it overlaps in meaning with the term *substantivization*, created by Nicholas Thomas (1992). Thomas's *substantivization* refers to the stipulation of practices and institutions by an indigenous people for purpose of their "reflecting upon and manipulating" them (p. 64) in determinate situations, particularly colonial ones (p. 65). *Substantivization* thus appropriately describes the emergence of named institutions through the interaction of the daily life of colonized people with the political and legal projects of colonization and the processes that follow from them. As such, entification is a process that may be relatively widespread in Papua New Guinea today. There are indications of it in what Stürzenhofecker describes among some Duna speakers, who, like the Onabasulu, live on the immediate periphery of a large-scale resource development (1994; see also Jorgensen 1996, 1997). This case study of the Onabasulu in an era of petroleum extraction illustrates how groups are discursively produced, through state performatives (Rappaport 1979), anthropologically informed multinational jargon ("clans" and the like), and, ultimately, local efforts to appropriate and use for indigenous purposes these discursive innovations. The argument offers insight into the dialectics of nature and society, for, as I shall show, in the course of exploiting nature (in the form of petroleum extraction), society itself is discursively reconstructed.

The Onabasulu live on the eastern edge of the Great Papuan Plateau in the Southern Highlands Province of Papua New Guinea (see Figure 1). They are part of the group of populations with similar cultures making up the "Strickland-Bosavi Region," which extends from the plains of the Strickland River in Papua New Guinea's Western Province to the upper Kikori River (called the Hegigio above its junction with the Mubi River) in the Southern Highlands Province. A good summary of the ethnographic sources on this region is provided in Ray Kelly's *Constructing Inequality* (1993, see pages 27–51).

The Onabasulu number, by the January 1996 figures, almost 800 people (this is up from just over 400 people in 1973, but still down from an estimated 1,200 or more in about 1935). Although they live in the Southern Highlands Province of Papua New Guinea, linguistically and culturally the Onabasulu and their western neighbors have much in common with the populations of the southern Papuan lowlands (see Knauff 1993). Their population density is low, and they inhabit over 400 square kilometers of high rainfall forested land at an altitude of between 450 and 800 meters above sea level. The land is heavily dissected by streams flowing from the mountains that enclose this portion of the plateau: Mt. Bosavi in the south and Mt. Sisa to the north (see Figure 1). Most of the streams in Onabasulu territory drain into the Hegigio.

Across the Hegigio is the area recently developed as the Kutubu Petroleum Development Project by a consortium headed by Chevron Niugini Pty Ltd. This large-scale project was begun in the late 1980s and the construction phase continued into the early 1990s. Spending in the region was high in this stage. Knauff discusses the early stages of the project in a piece entitled "Like Money You See in a Dream" (1996:95ff; see also Busse et al. 1993). After oil started to flow, royalties made their way mainly to Fasu speakers in the project area. By 1996, when I last visited the Onabasulu, the Chevron project was operating, and a Fasu-based company was in conflict with the Papua New Guinea government about limits on equity they could have in the company—a conflict that appeared serious in January 1996 and that was followed with interest through national radio news broadcasts by the Onabasulu in Walagu village.

The groups that are immediate neighbors of the Onabasulu and that figure heavily in this discussion are the Etoro (Dwyer 1990; Kelly 1976, 1977, 1993), the Kaluli (Feld 1982, 1996; B. Schieffelin 1990; E. Schieffelin 1976, 1977, 1985, 1991), and the Huli (Clark 1993, 1995; Frankel 1986; Glasse 1968; Goldman 1983). The cultural and material repertoires of the first two are very much like the Onabasulu; those of the Huli, living mainly in mountain valleys rather than submontane rain forest, are very different. In this part of the Southern Highlands Province, Huli speakers are numerically and politically superior to "fringe" groups such as the Onabasulu, Etoro, Kaluli, and the Fasu. The Fasu-speaking people live on the east side of the Hegigio, between the river and the large inland Lake Kutubu (see Williams 1942:figure 2). Before the consolidation of colonial administrative control completed in the early 1960s, the Onabasulu and Fasu peoples were in a relationship of continuing enmity. The Fasu are also a "fringe" people, not very numerous (about 1,100 in 1992), but having within their territory large and developed oil deposits. Part of the context of these changes I will describe is the active Onabasulu desire for wealth from resources, a desire that has been inflamed by the Kutubu Petroleum Project and Fasu wealth (Sagir 1997). I will look at changes (and continuities) in Onabasulu lifeworlds in this context. The domains examined are those of kinship and ethnicity.

Entification and a New Politics of Difference

The three stories I use in this paper are all abbreviated versions of material recorded in the Onabasulu community of Walagu in January 1996. The first concerns geographic features, the second concerns an autochthonous female originary figure named Duduma, and the third traces kin relations and control of land. They were told by several people, all negotiating the basic narratives, and then recorded on audiocassettes in informal public gatherings in

Walagu by Agibe Fua, Yeya Deba, and Malime Deba in both the Onabasulu language and in Tok Pisin (Melanesian pidgin). In regard to each of the three stories I shall recount, I offer a brief exegesis, exposing the underlying political agenda in the particular story's attempt to define various populations and to position them in a field of such populations.

The First Story

Now we have land group certificates. These certificates come from the National [government] in Moresby. On these we put seventeen clans that are inside. So now, if other people try to come inside and say the land is theirs, they are talking deceptively. Our belief is that the 17 lines are authentic. Now if some company comes inside and wishes to work, we have certificates. Now that we have Land Certificates, we no longer have worries. Suppose a company wants to mine gold or drill for oil and gas, we are the true owners of the earth [*papa bilong graun* in pidgin].

We have a big mark. On the Fasu side, we have the large river, its name is Mubi [the Onabasulu name for the Hegigio]. Cassowaries cannot cross it, snakes cannot cross it. People, too, cannot easily cross it.

On the side of the Huli we have a large wall, a big mountain. This mountain we call Folola. Planes find it difficult to get up to get over this mountain. On the two sides of this mark there are different stories. On our side we have sago and many kinds of snakes that can kill people. On the side called Huli, they are different. They have grass [*kunai*], and they build a different sort of house. We build long houses on hills or ridges. We have the mark, this mountain Folola. It finishes in the mountain Aowaga (?) and finishes at Bupi (?). On the top is Haliago (Mt. Sisa), and finishes at Yuwa (?). One side is the side of the Onabasulu, one side is the side of the Huli. Huli should not come into this side, the side of the Onabasulu. Onabasulu should not go into the side of the Huli. These mountains are our border.

There is a road. There is talk of a new road. We have a road from before. Huli sometimes come with weapons and kill our pigs and rape our young women.

We have a story about Fofola and Aowaga. There is a big snake. The snake's name is Faiyaninaro. The tail of this snake goes down past Aowaga, down the Kikori River. The head finishes at Yowa (?). The grease of this snake is found as oil [see Weiner 1995]. The blood of the snake is gas [one person suggested it was its brains that were gas]. It urinates petrol. This is an old story, the story of the snake. (It was part of our male initiation.) It is a true story, not like the stories told by some Huli of a snake, the tail of which is on the Huli side and the head of which is on the Onabasulu side. The snake sleeps. Its tail is down the Kikori, its head is at Yowa. White people do not know this story. People here know it. It is why we believe that most of the oil and gas in the region are here. It is our belief that Chevron knows that the big deposits of oil are here and will be worked when Kutubu fields are finished.

Rappaport's early work concentrated on local "populations" in their immediate and presumably somewhat iso-

lated local environments, in which they participate as elements in highly if not fully coherent ecosystems (Rappaport 1968:225ff.). To be sure, his scheme always allowed for a population to participate in a regional system as part of a "nonimmediate environment." The perhaps inappropriate simplicity of "a regional system" was likewise recognized but undeveloped. "Similarly, it may sometimes be necessary or useful to regard the 'non-immediate' environment to be composed of several regional exchange systems" (p. 227, n. 1).

The problem of system boundaries has received a great deal of acknowledgment if not close attention over a number of decades. Even without the direct "intrusion" of global capital or knowledge about it, this has remained a problem for remote and isolated populations such as the Tsembaga Maring, with whom Rappaport worked. As Ellen put it, "Analytical closure poses a particularly acute problem for systems analysis, although it is by no means unique to it. The boundaries groups and ecological populations are not always clear and human groups are seldom economically independent" (1982:185). Attention to the problems of system boundaries and closure has become even more crucial with awareness of the capacities of global mining companies to render "remote" and "isolated" local populations immediately accessible for their purposes.

In the myth recounted above, the question of boundaries ceases to be ecological, a matter of defining populations in their relations with an environment, and becomes a matter of the politics of culture. What is especially new in the myth is the way in which it reifies the "Onabasulu" in the context of an emerging ecopolitics. While the general ethnic configuration of the region between Mt. Bosavi and Mt. Sisa has recently changed significantly, I shall focus mainly on Onabasulu-Huli relations and their implications in this paper.

It is not misleading to say that presently, images of the Huli dominate much Onabasulu public discourse. There are sermons in church about Huli and the problems of their *raskol* gangs,² there are constant references in everyday conversation about Huli, and the Huli are seen as one of the greatest threats to the Onabasulu attainment of wealth through *resosis* ("resources"—especially oil, although some Onabasulu and Kaluli hold a firm belief in the presence of gold in Mt. Bosavi).

Earlier relations with the Huli were reserved, with little if any raiding, and based primarily on trade relationships. By 1996, the situation had become more fraught and in many ways better defined than in the 1970s, in part (although not exclusively) as a result of speculation by peoples in the area on the location and control of access to *resosis*.

In late 1969, the relations of ethnicity on the eastern edge of the Strickland-Bosavi region were, in terms of immediate appearances, relatively straightforward by Papua

New Guinea standards. Onabasulu (Onanafi in the Etoro language) was a named language corresponding with a named category of people—distinguished from, and defined through their interaction with, conceptually equivalent groups around them. Yet the category dissolved rapidly before my eyes. To outside observers, “Onabasulu” were the product of a rather thick boundary line drawn with a blunt pencil between the Kaluli and the Etoro. Perhaps there were no Onabasulu! To be sure, there was a distinct language—but it was only one (albeit the dominant one as you approach settlements in the center of “Onabasulu territory”) of the languages used in everyday life in “Onabasulu” long houses. Questions by government officials, mission personnel, and researchers about where Onabasulu territory started and where it stopped received various answers or none at all. There were no explicit diagnostic characteristics. The term *Onabasulu* was seldom used in public discourse among the people themselves.

What were clear in practice were the dominant principles of differentiation, particularly at the perceived edges of the seldom-discussed categories of ethnicity. They included kinship/affinity, trade, and violent hostility. It is where there were intense nodes of kinship/affinity that the edges were the most poorly realized and blurred (for example, at Onabasulu-Etoro and, historically, Onabasulu-Kaluli intersections). The edges became sharper between groups where the dominant mode of interaction was something other than kinship. Trade is one such mode. Historically, this was the case with Onabasulu-Huli relations. The most effective creation of distinction, up to the 1950s, however, was warfare: the traditional relations of violent enmity, raiding, and terror that were characteristic of Onabasulu-Fasu relations historically.

In discussing ethnicity, it must be remembered that, although distinctions (and resemblances) are important, boundaries and groups in many historical contexts are not. To read onto ethnic categories the radically separate bounded cultures sometimes described by outside observers does the ethnography a serious injustice. It probably has more resonance with modern ideologies of national cultures and, before that, with colonial perceptions than with sociocultural forms on the island of New Guinea. There has been a move, at least for certain contexts, however, to try to assert clear boundaries so useful (if ultimately definitionally slippery when questioned) for a politics of “cultural identity.” The words *boda* or “border,” *mak* or “mark,” and *banis* or “fence” have become a part of common usage in discussion (just as terms such as *royalties*, *equity*, *shares*, and *management structure* receive moderate to occasional use). So has the name Onabasulu.

The perceived (and actual) heavy increase in belligerence between Onabasulu and Huli is part and parcel of this new construction and politics of difference. So, too, is the story of the snake, whose body both defines the boundary between Huli and Onabasulu and accounts for the reasons

that that boundary is important. Interestingly, though it reifies the category “Huli” (*Disie*), the story also—and this is more important for considering conceptual change—gives *entitativity* to the category “Onabasulu.” This change is immediately noticeable when, upon landing at the new small airstrip near Walagu village, you can see a short distance away the new sub-district “*Onabasulu* Mini Health Centre,” duly named and labeled as such and ceremoniously opened by national government officials in November 1995.

The Second Story

This is the story of Duduma, now said by some to be the most important story for those who “know” it control Onabasulu land.³

Duduma was a large autochthonous woman in the time when no kin groups or places had names. She lived in the headwaters of the Kadi [the Onabasulu name for the upper branch of the Libano] River near a place called Maliya. Two men, one of whom was her husband, Wafesisila, and the other a “good man” named Desio, talked about and decided to kill her treacherously. Desio talked to her while Wafesisila worked his way behind her. He grabbed her and held her while Desio killed her. The place where she was killed was a small body of water, Ibisugoana. The meaning of the name is that the blood of Duduma went down to here. This is between Kebi and Hwogosie. The big river here is the Kadi River, and she was cut up on the Kebi side, close to the Kadi. Desio cut her up at Maliya. It is also *mi* or the center [*mi* also means seventeen and nose].

Her blood became the paint that colors the legs of the megapode [*aro*] red. Her liver became the Sewa River. Her body was carried around the entire Onabasulu country. Where she was killed, sago grubs [*feleli*] came up in profusion, and a type of red pandanus called *mimaro* grew.

She was carried around the country and her parts were distributed among the 17 true Onabasulu *mosomu*. They received their names from these. [Now the word *mosomu* is glossed by the Onabasulu as “clan”; formerly the gloss was *lain*] These are enumerated. Some examples include the following: *mosomu* Kimise was given her bones [*kiwi*], Hanoro was given her body fluids [*hano*], Gunigamo was given her head. Kebi struck and killed her, cut and cooked her, and has a set of names for *mosomu* segments from the processes involved in their actions, including the name of the *mosomu* Kebi, from the verb to touch or hit, and the segments Kebi Abane from the cooking stones [*abane*], Kebi Fuagba, from the sound when she fell [*fu*], etc. [The “complete” list of 17 clans was not recounted at this time, but there was an assertion that there were and still are 17 incorporated land groups.]

Maliya is an origin point. It is the center of the world. Near there, on a hill on the Hwogosie side of the river, where Duduma was first grabbed and hit and then pulled down and killed and cut up, there is said to be a small cave that has a stone dish with tree oil in it. Floating in the dish is a device made of sticks in the form of a cross with a third stick perpendicular to the others. A specialist from Hwogosie can look at

this device, representing the four directions of the world, to tell if there is a maldistribution of people—people coming back to the origin point. Slight problems in the distribution of people result in earth tremors [*heleli*]. On the Kebi side there is said to be a tree that grows out of the ground and then back into it in the form of an arch. A Kebi specialist can read the growth of shoots of the trunk as signs of the state of the ground.

This is a central Onabasulu myth, and much can be gleaned from it. Its theme is fragmentation and dispersal, as a result of an act of treacherous violence that is cosmogonic (see Biersack, this issue). It is from this that sociality—distinctions between clans, the institution of marriage as a control of dispersal, the movement of people throughout the environment and the naming of its features and so on—develops. But this story received little circulation outside previously. Now a number of Onabasulu want it to be widely known as it is seen as central to an Onabasulu identity. In this it has much in common in terms of political functions with story one.

The place where Duduma was killed, Maliya, is mentioned, without the Duduma myth, as Malaiya in Schieffelin's discussion of Papuan Plateau accounts stemming from Jack Hides's exploratory patrol in the 1930s. Malaiya (or Maliya) is "one of the most important" places associated with an "Origin Time" and, in yet another myth, is named as an "origin spot . . . near the headwaters of the Kadi River among the eastern Onabasulu" (Schieffelin 1991:65). In 1970, a petroleum exploration company that was a subsidiary of the Bendix Corporation did seismic surveys on the Papuan Plateau. They set up a camp at the junction of Kulu Creek and the Libano River, in a "grey area" between Onabasulu and Kaluli. Many Onabasulu worked for the company, laying out the charges and guiding helicopter pilots. The line moved up the Libano and Kadi rivers, alarmingly close to Maliya. I was told only of the general significance of Maliya at the time (with less detail than Schieffelin was given later), but the movement caused alarm.

In reflecting on the petroleum prospecting 25 years later, various Onabasulu draw two conclusions, based on the geography of the two stories above. The first is that the disposition of snake Faiyaninaro and the 1970 oil search by the Bendix Corporation subsidiary provide mutually corroborating evidence of oil deposits in Onabasulu territory. The second, as I was repeatedly told, is that it was important that the first phase of petroleum extraction occurred at Kutubu, for if a settlement as large as the place called Moro had been built at or near Maliya, the earth would have been irrevocably disturbed or destroyed (according to the importance of the ordinary dispersal and necessarily maintained distribution of people indicated in story two). Moro is on the northern end of lake Kutubu. During the construction phase in the early 1990s, it resembled a small city housing many hundreds of people. It had electricity, flood

lighting, its own airport and security force, a fleet of helicopters, and a nearby small temporary refinery to make its own aviation fuel from Kutubu crude oil. It still exists in a diminished form as location headquarters and offices for the joint venture.

The Onabasulu term for kinship group and long house group is *mosomu*. The common term consists of layered and contextual meanings and carries no notion of a "total" congruity between kin groups and long-house groups. In fact, normative residence arrangements take cognizance of aspects of social organization that preclude the complete localization of kin groups. I chose to call the kin categories "lineages" some time ago (Ernst 1984) for reasons that do not seem as compelling now as these are agnatic groups with patrilineage being the single stated requirement for membership. As they meet most of the standard definitional requirements (Ernst 1984:158–159; see also Kelly 1977: chapter 3), I shall continue to call them lineages.

With regard to "real property," Onabasulu lineages are (or were) at best weak "corporations," if corporations at all. At least this is so once any members of a lineage established a long house on its territory. Any "exclusive" rights in use of land for gardening are diffuse and at best nominal. Lineages have no real control over hunted or gathered forest products, and sago holdings are handled by a separate set of kin-based considerations focusing on individuals, their kin networks, and a history of bestowals for a variety of reasons. But lineages do have territorial connections and control (especially in men's views) over the disposal of women in marriage, which in turn creates the conditions for lineage reproduction. Finally, there is the presently all-important anticipated role in the relationship to *resosis*—for example, oil, timber, gold. That is very much a "commodities futures" situation right now.

The membership of Onabasulu lineages was small in the 1970s and remains small in the 1990s—seldom more than ten adult men. Lineages have genealogical "edges" past which members are included only with extreme difficulty. There is, in this regard, a potential for a form of segmentation or fissioning. The stipulation of this boundary is implicit and indirect and is ultimately related to notions of relatedness rather than some notion of lineage structure. People do not trust distant kinspersons, even agnates. Particularly, a man does not trust a kinsman past three degrees of collaterality, and this distrust creates the fractures that can lead to lineage segmentation or fissioning over time. Fissioning and segmentation can be prevented—or, rather, lineages can reproduce themselves—by the creation of critical matrilineal consanguinity among lineage members through marriages. One such marital arrangement is what Kelly has termed, when discussing processes of lineage fissioning among the Etoro, *agnatic parallel marriage*: "I will use the term parallel marriage to designate the marriage of a pair of women of the same descent group by any two men. If the latter are of the same descent group, I will

refer to this as agnatic parallel marriage" (Kelly 1977:72, n. 6). Using this form of marriage, it is possible to have two distant agnatic kinsmen marry two women who are sisters and bear children who are closely related to each other through matrilineal and not just patrilineal ties. By this technique, fissioning is never merely a structural consequence of lineage aging. It is most usually *intended*, or possibly (rarely) the result of demographic contingencies, or what is, from a male perspective, the matrimonial recalibration of particular women. In any case, whether solidarity is restored, fission occurs, or some form of segmentation is continued (thus leaving open all possibilities) is not completely determined structurally. Rather, it is the contingent result of the histories of the intentional actions of men and women in these small groups (compare the impressive history of the fissioning of a Foi community presented by Langlas and Weiner [1988]).

But with the greater public reflection on *mosomu* and consequent substantivization of "clans" (as kin groups are generically known in the general parlance of government and law and most national discourses), the primary location of segmentation and fission may be moving from practical sociality to discursive practice. People now talk about lineage segments, something never before a part of general public discussion. Before, while there may have been lineage segments (as weak corporate groups), they never were *de jure*. There is now a fixed number of clans. At least, *there is said to be* a fixed number of clans. Furthermore, they are *legally* fixed, as they are Incorporated Landowner Groups (ILGs) under Papua New Guinea law. There is no room for fissioning, and segments are now spoken of as subclans. ILGs are presently beloved by certain government departments and some multinational companies as an administrative tool based in local custom. Chevron, in 1994, using the same techniques developed at Kutubu, where ILGs were considered by the joint venture to be highly successful for dealing with landowners and distributing royalties, was instrumental in the incorporation of Onabasulu clans as ILGs. The fixed number of ILGs/clans are also supposed to be embedded in the myth of Duduma.

Why 17? Because the word for 17 means nose, which is the center of the body count. Seventeen, as nose, is the only number in the Onabasulu counting system that is unpaired. Onabasulu, like many peoples in this region, count up and then down the body (see Ernst 1994, 1996). Starting with the little finger of the right hand, they count the fingers, palm, wrist, parts of the arm and neck, cheek, ear, eye and finally the nose (17). The number 18 is the same word as the number 16, but refers to the left rather than the right eye. This applies all down the left side, until the small finger of the left hand is reached, which signifies 33. A similar counting system and its cultural significance is described by Biersack for the Paiela (1982; see Biersack, this issue). As the number 17 (which is also "nose" and "center") is the only unpaired number in the counting system, it

represents singularity, as opposed to the plurality of the paired numbers. It is therefore appropriate to the cosmogonic myth of Duduma, who is killed at the center, a location from which diversity emerges. The "17 clans" correspond to an entitled Onabasulu identity in relation to the cosmogonic myth of Duduma, not to empirical extant kinship groups. But the result is the providing, "in law," of a fixed number (17) of incorporated groups that are called *clans*.

We begin to see here a few of the complexities of historical and social processes—regional, colonial, and national politics, and international political economy—as they engage and are engaged by Onabasulu telling the stories of Faiyaninaro and Duduma.

The Third Story

The third story is obviously an exercise in pragmatic storytelling. It is still grounded in Onabasulu social understandings. It is not entirely decipherable unless some genealogical and historical knowledge is available. It focuses on contestation and uses a story as the base of claims for a tract of land that is valuable now because of the possibility of *resosis* on it. It re-creates an extinct line. The story nature of the narrative is important. It is the initial character's unusual appearance, he had a tail, which the tellers explicitly said make this a "story" rather than a mere recounting of what happened. Even here there is a special connection with the ground. The initiating character (Wafuale) had to dig holes in it for his tail when he sat.

Ole is a clan name. Ole was one group. The line died. One man was named Wafuale. He had a tail. To sit down, he had to dig a hole in the ground for his tail to go into. His tail bone went down so he could sit down on the ground. He was a friend of one member of the Sabiasulu lineage, a man named Gaiyuba. Wafuale gave his land to Gaiyuba to look after, for Ole clan had died out. Gaiyuba died and gave the land to Haiba. Haiba looked after the ground, and, when he died, he gave the ground to Wabowe. Haiba told Wabowe the place was named Yabolo, Nuguli, Isedo, and Wabido. Wabowe had no male children. He told Yeya Deba, the son of Deba, "I have no male children. Your two sons, Gobi and Malime, should look after the land. Take this ground. Do not give it to other men. When you two die, you must give it to another man."

The storyteller goes on to note: "This story is important, for, if a company comes and finds resources, the owners of the ground are known and the story is *taped*."

If, as Bruce Knauft has written in a piece about Kutubu Petroleum Development, "in a postmodern era, journeys of exploration don't end; they ratchet their ironies to a higher scale. These ironies are not just discursive, epistemological, or limited to a world of tropes, they have enormous impact on people's lives" (1996:95), then Wabue was there for the complete ratcheting. He saw Hides, the Kutubu Project, the coming of the colonial era and the postcolonial

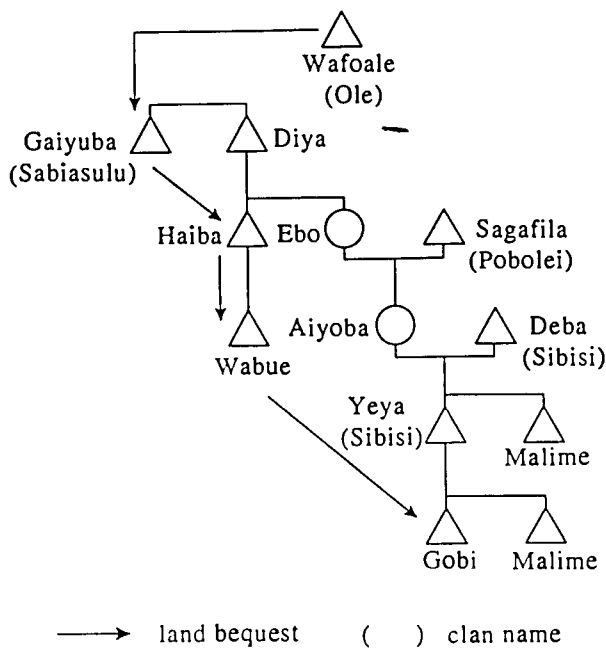


Figure 2. Relations in story 3. Note: In this diagram, Yeya is a "brother" to Wabue, for in Onabasulu kin terminology, FaSiDa="Mo" and FaSiDaSo="Br." Therefore, Yeya's sons are "Br"So or "So" to Wabue (who had three daughters and no sons).

state, and the beginnings of the process of the incorporation of mosomu as ILGs. Then he figures in the third story as a central player in the organization of what is an ILG, a "clan," albeit in actual fact an extinct lineage.

Ole, the lineage of interesting status, is presently involved in a dispute over an oil well involving some Huli. In this dispute there is the problem that Ole is in a very real sense no longer a group. Hence the importance of story three. The territory of what was Ole is used by members of Hanoro, Sabiasulu, and Sibisi lineages, acting in concert. The last man of Ole—who had the misfortune of having a tail, making him an unattractive prospect as a husband as well as giving him sitting difficulties—bestowed the land on the father's father of Wabue. Wabue, who had only daughters and who was the last male of his segment of Sabiasulu, therefore, bestows custody of the land on the sons of his father's sister's daughter's son. These are appropriate as they are classificatory sons of Wabue. In Onabasulu kin terminology, both matri- and patrilineal female cross-cousins are termed "mother." So Yeya's (and Malime's) mother Aiyoba is also "mother" to Wabue. Yeya's sons are Wabue's [brother's] sons as well. The processes are all appropriate in Onabasulu and fit nicely with those social processes I saw as *implicit* in the 1970s. An irony is that they become explicit in disputes surrounding an incorporated land group that is named for an extinct lineage (see Figure 2)!

These newly incorporated "clans" are not exclusive descent groups or any other kind of exclusive group. In the Onabasulu conception of them, the ambiguities of understandings of relatedness emerge when explicitly stipulating members and therefore people argue that people other than agnates (for example, wives, sisters, sister's children, etc.) can belong to a clan. Therefore, many people are listed in notes as belonging to a number of clans simultaneously. This may be possible under the terms of the legislation to incorporate groups, as long as it is recognized in custom. If, however, it becomes necessary to define an exact membership for purposes of claims to resources or money, under the act, as I understand it, people will have to relinquish membership in all other groups (see Fingleton 1992).

From this example, we may conclude that practices of incorporation adopted within a national and international context of resource development involve the entification of previously contingent local categories and groups. "Traditionally" Onabasulu lineages are not permanent entities—they are historically contingent and dependent on the activities of men and the connecting capabilities of women. ILGs are similarly contingent, the product of action rather than structure. Men act in history by intentionally creating, splitting, and obliterating and, now, by even resurrecting these small groups. These activities, of course, take place in an arena of contest. The same is true today, although the arena is nationally and internationally, rather than locally or regionally, defined. Since literacy is now discursively crucial to engaging in processes of contestation, the anthropologist participates in these politics. I was told the story so that I could write the story down and lend legitimacy to Ole's claim for clanship status. My "authority" on matters of kinship was based on an assumption that I would be useful. People knew that I worked in Fasu in 1992 on the incorporation of land groups.

Conclusion

This has been an exploration of the implications of the three stories that were told to me in 1996. They were all told in a context of acute awareness of oil as a resource and its local politics, as people were following the unfolding of a small crisis at Lake Kutubu, where a landowner company requested more equity in the Chevron-run project and, in the ensuing dispute, Chevron evacuated their expatriate personnel and threatened a temporary shutdown of production. The first story strategically defines the Onabasulu in part for purposes of control of oil, gas, and other resources. The snake Faiyaninano provides oil and gas and marks a border that has become important in defining "the Onabasulu," all in an indigenous idiom. The Duduma myth of the second story, traditionally perhaps the most important story of the relations of people to each other and to the landscape as well as the creation of social life and the world, takes the definition of "the Onabasulu" further. The

17 true Onabasulu clans are defined in both myth and land-owner group certificates. There is a purposeful reality to Onabasulu "being" that is entirely novel, a function of contemporary circumstances and a manipulable state power, which exerts itself in the context of multinational resource development and the need of multinationals to identify interest groups and concerned parties. Yet it is based in understandings and concepts that are specifically and exclusively a part of the region, and may well have been previously mobilized in relation, say, to earlier Huli ritual expansion. Further, the entification of ethnic category goes hand in glove with the construction of "clans" (the third story), which are organized by familiar processes of Onabasulu kinship but that today, in their incorporated state, suggest a company or a business. The Onabasulu *bisnis-mosomu* emerges in a fluid and contested field through various discursive practices in which national law is used to authorize local representations in a complex politics that is at once local, regional, and international.

The first two stories illustrate how "cognized models" as deployed are not always merely mimetic but may constitute highly politicized discursive practices. All the stories, but especially the third story, exhibit a coordinate politics centered on group definition and entification and resulting in the creation of ethnic and social groups. That resource development would motivate a complex discursive politics focused on both landscape and society follows from the ties between land and society that are created weakly in traditional Onabasulu corporate notions and emphatically in national and international notions of property holding and the practices of incorporation these notions inspire.

Notes

Acknowledgments. This article is based on research carried out with the aid of a Doctoral Research Grant from the National Institutes of Health (USA) and travel grants from the University of Papua New Guinea and Charles Sturt University. Some of the research was carried out while a visiting fellow in the Research School of Pacific and Asian Studies at the Australian National University. This version was completed while a visiting researcher at the National Museum of Ethnology, Osaka. I thank those institutions for their support. Earlier versions of this paper have been presented at a conference on large-scale resource extraction and cosmologies at James Cook University in October 1996, at Sydney University's anthropology seminar series in April 1997, and at the conference "From Myth to Minerals," convened by A. Rumsey and J. Weiner and subsidized by Wenner-Gren Foundation for Anthropological Research at the Australian National University in 1997. I thank all participants for their comments, but especially Steve Feld, Neil Maclean, Michael Nihill, James Weiner, and Kerry Zubrinich. The comments in Sydney by Jadran Mimica were extremely useful and clarifying for me. I also thank Aletta Biersack for her suggestions in preparing

this article for publication. Of course, all responsibility for the paper and its shortcomings are mine.

1. The 3rd edition of the *Shorter Oxford English Dictionary on Historical Principles* has the following entry for *entify*: "v. rare 1882 To make into an entity, to attribute objective existence to. Hence **Entification**" (Little et al. 1973:665).

2. *Raskol* is a pidgin (Tok Pisin) term used generally in Papua New Guinea to refer to criminals such as bandits and gang members. For some named gangs it is also used self-referentially.

3. Isao Hayashi notes (personal communication 1994) an analogous story from the closely related Bedamuni culture. In the Bedamuni case, the woman named Dunumuni is short rather than large. She was reported as being without genitalia. Her death occurred "a long time ago, when everyone lived together," and the fragmentation of her body brought an end to that period and was, as was the fragmentation of Duduma, cosmogonic (see Biersack, this issue).

References Cited

- Biersack, Aletta
1982 The Logic of Misplaced Concreteness. *American Anthropologist* 84:811-829.
- Biersack, Aletta, ed.
1995 *Papuan Borderlands: Huli, Duna, and Ipli Perspectives on the Papua New Guinea Highlands*. Ann Arbor: University of Michigan.
- Busse, Mark, S. Turner, and N. Araho
1993 *The People of Lake Kutubu and Kikori: Changing Meanings of Daily Life*. Waigani, NCD, Papua New Guinea: Papua New Guinea National Museum and Art Gallery.
- Clark, Jeffrey
1993 Gold, Sex, and Pollution: Male Illness and Myth at Mt. Kare, Papua New Guinea. *American Ethnologist* 20:742-757.
- 1995 *Highlands of Desires*. In *Papuan Borderlands: Huli, Duna, and Ipli Perspectives on the Papua New Guinea Highlands*. Aletta Biersack, ed. Pp. 379-400. Ann Arbor: University of Michigan Press.
- Dwyer, Peter
1990 *The Pigs that Ate the Garden: A Human Ecology from Papua New Guinea*. Ann Arbor: University of Michigan Press.
- Ellen, Roy
1982 *Environment, Subsistence and System: The Ecology of Small-Scale Social Formations*. Cambridge: Cambridge University Press.
- Ernst, Thomas
1984 *Onabasulu Local Organization*. Ph.D. dissertation, Anthropology Department, University of Michigan.
- 1994 *Empirical Attitudes, History and Number in a Melanesian Culture*. In *On Different Premises: Proceedings of the Third National Conference on Reasoning*, pp. 167-179. Wagga Wagga, New South Wales: OLI Press.
- 1996 Evidence and the Millennium in a Papua New Guinea Culture. *Thamyris* 3:55-68.

- Feld, Steven
 1982 Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression. Philadelphia: University of Pennsylvania Press.
 1996 Waterfall of Song: An Acoustemology of Place Resounding in Bosavi, Papua New Guinea. In *Senses of Place*. Steven Feld and Keith Basso, eds. Pp. 91-135. Santa Fe: School of American Research Press.
- Fingleton, J.
 1992 Manual of Laws and Procedures for Land Group Incorporation. Prepared for Chevron Niugini Pty Ltd, Kutubu Petroleum Development Project.
- Frankel, Stephen J.
 1986 The Huli Response to Illness. Cambridge: Cambridge University Press.
- Glasse, Robert M.
 1968 Huli of Papua: A Cognatic Descent System. Paris: Mouton.
- Goldman, L. R.
 1983 Talk Never Dies: The Language of Huli Disputes. London: Tavistock Publications.
- Homans, George C.
 1941 Anxiety and Ritual: The Theories of Malinowski and Radcliffe-Brown. *American Anthropologist* 43:164-172.
- Jorgensen, Dan
 1996 Regional History and Ethnic Identity in the Hub of New Guinea: The Emergence of the Min. In *Regional Histories in the Western Pacific*. John Barker and Dan Jorgensen, eds. Special issue. *Oceania* 66:189-210.
 1997 Who and What Is a Landowner? Mythology and Marking the Ground in a Papua New Guinea Mining Project. *Anthropological Forum* 7:599-627.
- Kelly, Raymond C.
 1976 Witchcraft and Sexual Relations: An Exploration in the Social and Semantic Implications of the Structure of Belief. In *Man and Woman in the New Guinea Highlands*. Paula Brown and Georgeda Buchbinder, eds. Pp. 36-53. Special Publication No. 8. Washington, DC: American Anthropological Association.
 1977 Etoro Social Structure: A Study in Structural Contradiction. Ann Arbor: University of Michigan Press.
 1993 Constructing Inequality: The Fabrication of a Hierarchy of Value among the Etoro. Ann Arbor: University of Michigan Press.
- Knauff, Bruce M.
 1993 South Coast New Guinea Cultures: History, Comparison, Dialectic. Cambridge: Cambridge University Press.
 1996 Genealogies for the Present in Cultural Anthropology. London: Routledge.
- Langlas, Charles M., and James F. Weiner
 1988 Big-Men, Population Growth, and Longhouse Fission among the Foi 1965-79. In *Mountain Papuans: Historical and Comparative Perspectives from New Guinea Fringe Highlands Societies*. James F. Weiner, ed. Pp. 73-110. Ann Arbor: University of Michigan Press.
- Little, William, H. W. Fowler, and Jessie Coulson
 1973 Shorter Oxford English Dictionary on Historical Principles, 3rd ed. C. T. Onions, ed. Oxford: Clarendon Press.
- Rappaport, Roy A.
 1967 Ritual Regulation of Environmental Relations among a New Guinea People. *Ethnology* 6:17-30.
 1968 Pigs for the Ancestors: Ritual in the Ecology of a New Guinea People. New Haven, CT: Yale University Press.
 1979 Ecology, Meaning, and Religion. Richmond, CA: North Atlantic Books.
 1980 Concluding Comments on Ritual and Reflexivity. *Semiotica* 30:181-193.
- Sagir, Bill
 1997 The Politics of Oil Extraction in Kutubu. Paper given at the conference "From Myth to Minerals," convened by A. Rumsey and J. Weiner and subsidized by Wenner-Gren Foundation for Anthropological Research. Research School of Pacific and Asian Studies, Australian National University, July 1997.
- Schieffelin, Bambi
 1990 The Give and Take of Everyday Life: Language Socialization of Kaluli Children. Cambridge: Cambridge University Press.
- Schieffelin, Edward L.
 1976 The Sorrow of the Lonely and the Burning of the Dancers. New York: St. Martin's Press.
 1977 The Unseen Influence: Trance Mediums as Historical Innovators. *Journal de la Société Océanistes* 33:169-178.
 1985 Performance and the Construction of Reality. *American Ethnologist* 12:707-724.
 1991 The Great Papuan Plateau. In *Like People You See in a Dream: First Contact in Six Papuan Societies*. Edward Schieffelin and Robert Crittenden, eds. Pp. 58-87. Stanford, CA: Stanford University Press.
- Stürzenhofecker, Gabriele
 1994 Visions of a Landscape: Duna Pre-meditations on Ecological Change. *Canberra Anthropology* 17:27-47.
- Thomas, Nicholas
 1992 Substantivization and Anthropological Discourse: The Transformation of Practices into Institutions in Neotraditional Pacific Societies. In *History and Tradition in Melanesian Anthropology*. James G. Carrier, ed. Pp. 64-85. Berkeley: University of California Press.
- Wagner, Roy
 1974 Are There Social Groups in the New Guinea Highlands? In *Frontiers of Anthropology*. Murray Leaf, ed. Pp. 95-122. New York: D. Van Nostrand.
- Weiner, James F.
 1995 The Lost Drum: The Myth of Sexuality in Papua New Guinea and Beyond. Madison: University of Wisconsin Press.
- Williams, F. E.
 1942 Natives of Lake Kutubu, Papua. *Oceania* 12:49-74, 134-154.

8. Doolittle, A. 1998. **Historical and Contemporary Views of Legal Pluralism in Sabah, Malaysia (North Borneo).** Common Property Resource Digest #47:1-5. Reprinted with permission from the Common Property Resource Digest and the author.



The Common Property Resource Digest

NO. 47

QUARTERLY PUBLICATION OF THE INTERNATIONAL ASSOCIATION FOR THE STUDY OF COMMON PROPERTY

DECEMBER 1998

CPR FORUM

Legal Pluralism

Commentary

Historical and Contemporary Views of Legal Pluralism in Sabah, Malaysia (North Borneo)
Amity Doolittle 1

Responses

"Indirect rule" and the Rule(s) of Law
M. D. Olson 6

Natural Resources Policy and Legal Pluralism in Yurok Territory
Lynn Huntsinger 7

Legal Pluralism and Legacies of "Customary Rights" in Indonesian and Malaysian Borneo
Nancy Lee Peluso 10

Announcements 14

Recent Publications 15

IASCP Membership 18

CPR FORUM COMMENTARY

Historical and Contemporary Views of Legal Pluralism in Sabah, Malaysia (North Borneo)

AMITY DOOLITTLE

Yale School of Forestry and Environmental Studies
New Haven, Connecticut

A NATIVE RESERVE IN GOVUTON¹

In the late 1950s local leaders in Govuton, a village in the highlands of North Borneo, mobilized to protect their communally-owned village lands. These lands included areas used for subsistence and commercial agriculture and forested areas which the village traditionally used for hunting and gathering forest resources. Used by villagers for centuries, these lands and forests not only had material importance in daily life, but also symbolic importance in village folklore and ritual life. Rather than requesting private title to lands that each family could rightfully claim under the 1953 Land Laws, leaders in Govuton turned to a little-used section of the Land Laws under which communal titles could be issued to villages, for "lands held for the common use and benefit of natives." The Land Laws called these communal titles Native Reserves.

This article explores the history of colonial law in North Borneo and illustrates how the proliferation of legal systems had different impacts in different contexts. In the early days of colonial rule, state recognition of customary laws, coupled with the imposition of Western legal principles, imposed state power over local society by marginalizing "natives" from economic changes occurring throughout the territory. In contrast, the case study of the Native Reserve in Govuton illustrates how local leaders were at times able to co-opt state definitions of native customary laws to maintain local control over traditional lands. In this context, legal pluralism was a mechanism of local autonomy. However, while colonial recognition of customary laws provided Govuton with increased autonomy at one time, today local people feel trapped by the customary laws that once again appear to marginalize them from economic changes occurring elsewhere in the state.

Letters, announcements, and other submissions for the March 30 issue of the CPR Digest will be accepted until March 10. Please send to: Editor, CPR Digest, Department of Human Ecology, Cook Office Building, Rutgers, 55 Dudley Rd., New Brunswick, NJ, 08901-8520; dwilson@aesop.rutgers.edu

For membership, dues, back issues, and missing copies, contact IASCP Secretary Treasurer, Indiana University, Woodburn Hall 220, Bloomington, IN 47405 USA; iascp@indiana.edu

For questions about IASCP papers and research, contact Charlotte Hess, Information Officer, IASCP, Workshop in Political Theory and Policy Analysis, Indiana University, 513 N. Park, Bloomington, IN 47408 USA iascp@indiana.edu

The Common Property Resource Digest

Published with support from the Rockefeller Brothers Fund

Editor-in-Chief
Nancy Lee Peluso

Managing Editor
Julie E. Greenberg

Readers who would like to comment on the issues in this forum may send a letter of no more than 350 words to:

Editor, CPR Digest
Department of Human Ecology
Cook Office Building
Rutgers
55 Dudley Rd.
New Brunswick, NJ, 08901-8520
dwilson@aesop.rutgers.edu

INTERNATIONAL ASSOCIATION FOR THE STUDY OF COMMON PROPERTY (IASCP)

CURRENT OFFICERS

President
Bonnie McCay
President-Elect
Susan S. Hanna

COUNCIL

Janis Alcorn
Erling Berge
Fikret Berkes
Antonio Diegues
Anil Gupta
Owen Lynch
James Murombedzi

CPR Digest Editor
Nancy Peluso

Information Officer
Charlotte Hess

Secretary Treasurer
Michelle Curtain

© 1998 IASCP

In the following pages I begin my analysis by examining how native land rights were integrated into colonial laws through an explanation of legal pluralism and its role in colonial rule in North Borneo. Next I discuss two competing narratives about the Native Reserve in Govuton. One narrative is the distilled official discourse; the other is the standard account given by villagers living within the Native Reserve (hereafter referred to as The Reserve). Finally, I discuss the impacts of legal pluralism on contemporary society by investigating current concerns over resource use within The Reserve in Govuton.²

LEGAL PLURALISM AND COLONIAL LAW

North Borneo was ruled by the North Borneo Chartered Company (hereafter referred to as The Company) from 1881-1946. From 1946 until Independence in 1963, North Borneo was a Crown Colony of England. Today North Borneo is known as Sabah, and is a state in the Federation of Malaysia. My analysis of colonial land laws and the ethnographic details from Govuton bridge the periods of Company and Crown rule. These periods, which I collectively refer to as colonial rule, differed in significant ways. The Company invested significant administrative energies on territorializing strategies such as surveying the landscape. As a commercial enterprise, The Company favored large-scale plantation agriculture over native agriculture, depending on its profits to govern the territory. When the British Crown took over administration of North Borneo, it was not as concerned with territorializing strategies or profit margins. Nevertheless, many administrative policies and Land Laws instituted by The Company remained under Crown rule. Many British colonial officers who served under Company administration remained when North Borneo became a Crown colony. For the most part, the laws and the men who implemented them remained constant between the two eras. Thus, for the purposes of this analysis, I am not concerned with variations in governance that existed between Company and Crown rule. While I focus on similarities rather than variations in colonial rule, it would be equally legitimate in another project to emphasize variations and analyze their different impacts on society.

The land laws, which still define how natives can claim their traditional lands today, were instituted under Company rule. Since plantation agriculture was the primary mechanism by which the Company supported economic growth, many of the land laws revolved around the need to transform land into a marketable commodity by equating land ownership with private title. Yet the Company was also obligated through its Royal Charter from Britain to respect "native customs and laws," particularly "the holding, possession, transfer, and dispo-

sition of lands." Thus, economic development of the territory depended on delineating native customary rights to land so that "waste lands" (lands that natives did not claim under customary law) could be made available to foreign plantation owners. As a result, the imposed Land Laws integrated aspects of native customary tenure with Western property law to support the commodification of land.

Situations like the one described above, in which two or more legal systems co-exist in the same social field, one set of laws for the colonizers and another for the colonized, are defined as cases of legal pluralism. In the context of Company rule, codification of native customary rights and incorporation of these rules into colonial law served instrumental rather than humanitarian purposes. It allowed the woefully understaffed and underfinanced Company to rule indirectly through native chiefs and native courts who oversaw state-sanctioned indigenous legal systems. Furthermore, by recognizing indigenous legal systems and by giving native leaders new authoritarian positions within society, colonial administrators were ensuring the complicity of at least some natives in colonial rule. Thus, colonial attention to customary laws emerged as a mechanism of power and domination over local society. Legal pluralism encoded asymmetric power relations not only between ruling elites and local society, but also within local society, as some local leaders gained authority by participating in colonial rule.³

As early as 1889, colonial Land Laws encouraged natives to gain individual title to lands that they could claim under customary law. Colonial codification of native land rights recognized: 1) land under cultivation or land being used for housing, 2) land planted with fruit trees at the rate of twenty or more per acre, 3) isolated fruit trees if enclosed by a fence, 4) grazing land stocked with animals, 5) wet and dry padi land so long as it was cultivated for at least three years prior to registration, and 6) burial grounds. Once customary rights to land were registered with the Collector of Revenue, natives were issued a private title called Native Title. And communal titles, called Native Reserves, could be issued for village lands.

While colonial laws did attempt to include some variations in native land tenure systems, such as communally-owned village lands and the ownership of valuable trees, implementation of the Land Laws was never complete. Numerous policy statements and the actions of individual officers focused on issuing private title to agricultural lands. This occurred not only because native tenure systems seemed confusing and complex in colonial eyes, but also because individual property was considered more efficient economically-with each piece of land

came a title that could be bought, sold, and importantly, taxed. To colonial administrators, common property, which could not be bought, sold or taxed, and which confounded colonial efforts to alienate land to private investors, impeded economic progress.

Central to the formation of colonial law is the fact that the process of codifying customary laws and integrating colonial understanding of these laws with Western legal principles lay in the hands of the colonizers. Thus, native laws were selectively codified, simplified, and in many cases ignored, based on the political and economic agendas of the ruling elite. While some customary laws were supported in statutory laws, those hampering commercial exploitation of land were replaced with Western legal principles.

In the face of state-wide initiatives to replace native customary rights with Native Title, the case of The Reserve in Govuton stands out as a notable exception to the colonial policy of settling only individual property claims. In the following two sections I explore why The Reserve was supported by colonial officials and why it was sought by local leaders.

STATE NARRATIVES: "PROTECTING NATIVES FROM THEIR OWN IMPROVIDENCE"

Viewed from the analytical perspective of state formation, The Reserve speaks to the question of state control over people and their resources. A dominant discourse in colonial rule in North Borneo emerged surrounding native land rights and land use systems. In one strand of this discourse, colonial administrators were concerned with the perceived inability of natives to manage their lands within the rapidly changing market economy. As a result many of the colonial Land Laws limited local decision-making regarding land. For instance, during land settlement, natives who could prove customary rights to land were issued a Native Title. Native Title was considered a generous title by colonial officers since it carried no premium, had an annual rent of only 50 cents an acre, and constituted a heritable and permanent title. But natives could not sell or transfer Native Titles to non-natives without governmental permission. The notion behind this restriction was that natives did not understand commercial land transactions. If they were not "protected from their own improvidence," they would sell all their land to foreign speculators and be left with nothing.⁴ The belief that the "North Borneo native is a poor unsophisticated wight,"⁵ who is easy meat for a non-native land shark,"⁶ was a persistent thread in colonial discourse. Even in the late 1950s colonial officials expressed a moral duty to protect

natives from the cut-throat aspects of an emerging market economy. Consequently, many colonial officers made it difficult for natives to sell land to non-natives by charging substantial premiums for the transfer of native titles.

In light of the concerns of colonial officers that natives would lose their lands to non-native land speculators (an issue hotly discussed in the 1950s) The Reserve in Govuton can be seen as a state-sponsored mechanism to "protect" native-owned lands from falling into the hands of non-natives. Viewed more critically, the discourse of protecting native land rights had significant political-economic consequences; this "protection" resulted in prohibiting natives from participating in the lucrative market based on land sales—a market that both the colonial state and foreign investors were profiting from. As a result natives were increasingly marginalized through the use of multiple legal systems. This more critical stance toward colonial land laws and policies draws attention to the ways that legal pluralism inscribed unequal power relations, providing privileges to the ruling elite, while barring natives from enjoying those privileges.

LOCAL NARRATIVES: "PROTECTING OUR LANDS FOR FUTURE GENERATIONS"

Viewed from the analytical perspective of local agency, the move to gazette village-owned lands in Govuton as a Reserve speaks to the question of local people trying to regain control over traditional lands. While the colonial state did impose legal pluralism on local society, local people were not pliant in this process; they actively resisted, modified and accepted the new laws. The case of Govuton highlights that local people interact with state agents, asserting their opinions, albeit from unequal positions of power.

In 1957 the Director of Agriculture expressed an interest in the highlands surrounding Govuton. A road connecting Govuton to the coast was near completion and it was hoped that temperate fruits and vegetables could be grown commercially in the cool climate. At the request of the Director of Agriculture, the Department of Lands and Survey began to survey land around Govuton, to determine which land could be alienated for commercial agricultural development. Local leaders responded to these activities, claiming that the area being surveyed was village-owned forest.

In an effort to stop the state from appropriating the village's forested land for agricultural development, the Native Chief and other leaders from Govuton negotiated with the District

Officer to declare the village's communally-owned lands as a Reserve. Thus, the initiative to gazette the area as a Reserve emerged as a native effort to maintain local control over village lands. Today the Native Chief who negotiated with the state is viewed as a strong leader who protected traditional lands for future generations.

Earlier I presented what we can identify for heuristic purposes as the state narrative on native customary rights and the local narrative of the origin of The Reserve. These accounts are simplified versions, produced through archival materials and oral histories. The varying accounts imply that at times state interests and local interests were in opposition, while at other times collaborations took place. Importantly, the two narratives provide glimpses at the ways in which state agents and local people mutually influenced the formation of The Reserve through their interactions and negotiations. Where the analysis of state and local actors diverge is in their accounts of agency or the motivating force behind formation of The Reserve. In state accounts, the need to protect natives from foreign land sharks was emphasized; in the native narrative, the desire to protect local access to traditional lands was emphasized. Legal pluralism was employed by different actors for different purposes.

In the next section I contrast the rights and restrictions experienced within The Reserve with rights and restriction experienced by other natives elsewhere in Sabah to gain yet another look at the complexities that result from legal pluralism.

CONTEMPORARY IMPACTS OF LEGAL PLURALISM

Govuton's Reserve, as a form of native property rights, stands out in marked contrast to other forms of native property rights in contemporary Sabah. There are two issues related to the legacy of legal pluralism, which influence contemporary land disputes in Govuton. First, most native claims to lands elsewhere in Sabah were recognized in colonial statutory law under Native Titles. Today, natives with Native Titles may sell or rent their land without significant governmental interference (unlike the restrictions experienced in the 1950s and earlier). They can also use their Native Titles as collateral to secure bank loans to buy additional lands or improve current lands. Natives in Govuton are restricted by the colonial codification of customary laws which limits rights to land within The Reserve to use rights only. People in Govuton feel hampered by this; in today's political economy the inability to sell or lease land or to secure a bank loan are seen as significant impediments to individual rights.

The second source of disputes over land use in The Reserve stems from the fact that colonial codification of customary law failed to incorporate all social institutions associated with local laws and customs. The village governing body of elders, which would have traditionally managed land disputes, was not given authority under the Land Laws, and therefore does not function in the capacity it once might have. In fact, the contemporary state's political and economic support provided to the Village Authority for Development (which is primarily concerned with development projects like building schools and hospitals) even further undermines the authority of village elders who traditionally mediated land and resource-related disputes. Presently there is increasing inequity in access to land and resources within The Reserve. For instance, local elites are accumulating considerable amounts of village communal land for commercial agriculture. Other villagers, with less access to land, are making a living cutting trees within The Reserve, selling them to outsiders. Both these activities occur despite village customary laws that forbid individual use of village common resources for commercial profit. Since there is no local decision-making body that regulates resource use within The Reserve, disputes are going largely unresolved.

Local reactions to inequities occurring both within The Reserve and between The Reserve and other forms of property rights in Sabah are varied. Some Govuton residents would like to see The Reserve abolished, allowing each person to get Native Title for the land they have use rights to. This way they could increase their ability to participate in economic changes occurring throughout Sabah. Other villagers support the reinvigoration of a village decision-making body to oversee the equitable use of land and resources. Still others have formed a grand scheme to develop The Reserve for eco-tourism and other industries which they hope will provide new economic opportunities for the village. In short there is no local consensus on how to cope with the restrictions and inequities caused by colonial codification of customary laws.

CONCLUSION

Legal pluralism instituted under colonialism provided the residents of Govuton with the opportunity to protect village lands in the 1950s. But colonial efforts to recognize customary law significantly limited local autonomy in ways that could not have been anticipated in the 1950s. No longer seen as an effective way to maintain local control over traditional lands, The Reserve is now widely felt to be a burden, isolating Govuton's residents from the benefits of private property (Native Titles) available elsewhere in Sabah. Only through reinvigorated

efforts on the part of local leaders, coupled with political and economic support of the current state, can the present impacts of legal pluralism be mitigated and the potential benefits of The Reserve in Govuton be realized.

This case does not call for the renewal of community control over resources, as some advocates of native rights and community-based conservation suggest. Conflicts, internal stratification, and competing individual needs show us that we can not view local communities as harmonious, idyllic, and united in their resource needs. Instead, this case highlights the need to build bridges between communities and states agencies. While local institutions may be the most valuable way to regulate resource use according to community needs, these institutions need both political and economic backing from larger state institutions.

ACKNOWLEDGEMENTS

I would like to thank the many readers who helped me refine this analysis. They are Michael Doolittle, Michael Dove, Emily Harwell, Celia Lowe, Nancy Peluso, and Hugh Raffles.

ENDNOTES

1. "Govuton" is a pseudonym for a village in Sabah, Malaysia.
2. For simplicity I am classifying the players in this narrative as state officials and local people; in a longer paper the internal fractures that occur within these groups would be explored.
3. For a seminal study on native customary law in Africa, see Sally Falk Moore, *Social Facts and Fabrications: "Customary" Law on Kilimanjaro 1880-1980* (Cambridge: Cambridge University Press, 1986).
4. *Circular Notice to Officers, 1928*. North Borneo Company Archive file #815, Kota Kinabalu, Sabah.
5. *Wight*, an old English word meaning "person... thing, creature of unknown origin" (*Oxford Encyclopedic English Dictionary*. Oxford: Clarendon Press, 1991).
6. "Letter from the Director of Land and Survey to all Residents" 17 October 1957, Ranau District Office Records.

The author may be contacted at:
amiry.doolittle@yale.edu

Taking the Forest: The Shared Meaning of Tree Theft

MICHAEL R. PENDLETON

Society and Justice Program
University of Washington
Seattle, Washington, USA

In spite of the persistent nature of tree theft, little is known about the nature of this enduring activity. This year-long ethnographic study conducted in a Pacific Northwest national forest examines the nature of tree theft and the role that it plays in contributing to social order in the forest community. A blend of ethnographic and Forest Service data is the basis of a three-part tree theft typology. Findings show that tree theft that is affiliated with legitimate timber sales is accommodated by community tolerance and social support to preserve a shared sense of community. Unaffiliated thefts are not tolerated because of the disruption to community norms, and thus serve as an important community boundary. Tree poaching supports the sense of community as a means to order relationships, confer status, establish trust, and exclude unwanted members through the formal label of crime. As long as tree theft continues to service the stability of the forest community, it is likely to persist.

Keywords crime, enforcement, forest community, Forest Service, timber trespass, tree theft

Arguably, the most visible issue to escape serious discussion in the academic circles of forestry is tree theft. This omission is significant for at least two reasons. First, tree theft has been an enduring activity of major proportions since the inception of commercial extraction. Second, the stunning transformation of the U.S. Forest Service from the status of a model "super star" agency (Clark and McCool 1985) to one associated with internal strife and lawlessness has occurred largely within the context of failed environmental protection, timber theft, and ineffective law enforcement (Egan 1990; McCormick 1991; Taylor 1994; numerous newspaper and individual accounts). The silence on these issues is curious, if not insightful.

The stealing of trees has been a documented aspect of forestry since the turn of the century (Andrews 1984; Morgenroth 1991). At one time, 12 sawmills in the Pacific Northwest were known to have been "kept busy" exclusively on stolen logs (Andrews 1984). By the 1970s, timber theft on the national forests in the Pacific Northwest had "assumed epidemic proportions," requiring the involvement of the Federal Bureau of Investigation (FBI) and the application of strategic methods of investigation (Turchie and Williams 1979). The stealing of trees has been predominately viewed as "agricultural crime," with the harm defined in terms of economic loss (Swanson and Territo 1980). While it is generally acknowledged that accurate estimates of economic loss are difficult, it is believed that over \$100 million of public property is lost annually to tree theft (U.S. House Committee on Appropriations 1992). Recent reports by two environmental watch-

Received 13 February 1997; accepted 8 May 1997.

Address correspondence to Michael R. Pendleton, 34225 Bridgeview Drive NE, Kingston, WA 98195, USA. E-mail: mpendleton@telebyte.com

dog groups, in collaboration with Forest Service investigators, have alleged and subsequently documented years of widespread timber theft in Northwest national forests where, in one case alone, a major timber company "illegally cut 32,000 green trees a month" (Brown 1996).

In spite of the significance of tree theft, there has been little reported success in stopping the stealing of trees. The central question addressed by this research is, *Why?* More specifically, how might the meanings and social functions of tree theft explain its persistence? It is the answer to this question that might enable a more effective response toward curbing the negative impacts on the forest resource, loss of public funds, and the eroding reputation of the Forest Service. It also is important to understand the nature of tree theft because, arguably, it is evidence that the conventional views of rural life as being relatively crime free and logging as an honorable profession may be incomplete or changing. The theoretical framework for this inquiry is the social reactionist perspective of deviance.

Tree Theft as Functional Deviance: The Social Reactionist Perspective

It has long been recognized that deviance is not simply a disruptive social act, but also an important condition for preserving the social system (Durkheim 1965; Erikson 1966). One way that deviance contributes to social stability is through the interaction between deviant persons and the community to include agencies of social control. It is through these interactions that norms are established and maintained, creating the social boundaries of the community (Erikson 1978). In effect, deviance is a means for establishing the social meaning of community.

One of the most powerful "boundary maintaining mechanisms" is the social meaning, and subsequent labeling, of particular deviant acts as crime. As an interactive process, crime is not automatically determined by a deviant act alone, but it also is contingent on the social reaction to the act (Schur 1971). Through highly discretionary, contingent, and selective confrontations with the institutions of law enforcement, particular behaviors and people become eligible for the label of crime. It is through these interactive confrontations that crime becomes a changing and often manipulated idea based in social reaction. As Becker (1978, 13) noted:

behavior may be an infraction of the rules at one time and not at another; may be an infraction when committed by one person, but not when committed by another; some rules are broken with impunity, others are not. In short, whether a given act is deviant or not depends in part on the nature of the act and in part on what other people do about it.

It is the selection of deviance for the label of crime, in contrast to the exclusion of comparable acts from the roster of crime, that illuminates the relative advantages and biases that the label of crime services. Often, deviance is allowed to continue because it is a visible product of established social structure, and thus serves certain social functions. To treat these acts as criminal not only would disrupt the social system, it would implicate it as well (Reiman 1995). To withhold the criminal label, in these cases, is an important means to preserving the shared meaning of community. It is a protective decision.

Is it possible, then, that tree theft persists because it actually is a stabilizing influence in the social order of the forest community, and to criminalize it would disrupt the shared identity of this community?

The Study

The research reported here is part of a larger international study of crime and enforcement in natural settings (forests and parks). This portion of the field study took place in a national forest in the western United States during a 24-month period in 1992–94. The research area was divided into four research districts that corresponded to the geographic boundaries of the national forest administrative districts. The U.S. Forest Service served as host agency, providing complete access to its daily operations, personnel, and records. Standard confidentiality protocols were established to protect human participants.

A blend of ethnographic and quantitative methods was utilized. The quantitative information is based on crime and enforcement data collected directly from the files in one of four randomly selected Forest Service Ranger Districts within the research forest for the years 1989 through 1992. Gibbs (1981) noted one of the clear advantages of reactive definitions of crime—official data—while only rough approximations of behavior that violates social norms are accurate accounts of the social reaction of official criminal justice agencies. Particular events officially are “crimes” only if they are “defined” as such by agents of the system. In symbolic terms, these agents must attribute certain meaning to a situation and then act on that meaning. By blending ethnographic observations with official data, both the behaviors that are defined as crime and those that are not can be analyzed to more fully account for the role of tree theft in the social system.

The ethnographic methodology was selected to accommodate the emerging nature of this research topic and available qualitative data (Atkinson and Hammersley 1994). Field observations and interviews were conducted with the primary participants who, for this portion of the research, were Forest Service law enforcement officers (LEOs) assigned to each of the research areas. Researchers accompanied the LEOs during their normal daily work routines. A total of 60 observations was systematically scheduled to rotate equally through each of the four research areas. These observations were conducted at all hours of the day and night, all days of the week, and every month of the year to include holidays. Field observation periods ranged from a few hours to several consecutive days. The observations occurred on patrol in the forest, office, courtrooms, and various local community settings. During observations, in-depth semistructured interviews with each LEO were conducted. In addition, formal semistructured interviews were scheduled and conducted with administrative employees, which included special agents, investigators, and supervisors. Interviewees were asked to describe their career history, the enforcement system, the nature of tree theft, and their views on a range of observed and reported tree theft incidents. In addition, interviews were conducted with community members and citizens encountered during the field research period. In total, over 600 hours of observations and interviews were conducted and documented during the Forest Service portion of this research. Finally, newspaper accounts and agency records of tree theft cases were collected and reviewed.

The Social Meaning of Tree Theft

Tree theft was among the most prolific violations observed in this study. On virtually every research observation, evidence of tree theft was encountered. In one district, a single case alone accounted for over 200 trees, with numerous other cases waiting for investigative action. While it is beyond the scope of this research to quantify the volume and acreage of trees stolen, one senior administrator estimated that “literally hundreds of thousands if not millions of dollars worth of trees had been stolen” from this forest. In a case prosecuted on this forest 4 years prior to this research, offenders reported the theft of

120 log truckloads in a 2-month period. Quite simply, it is common. Three distinct types of tree theft were identified in this research, each distinguished by the shared meaning and social definitions assigned to the types of tree theft. The three types—timber trespass, timber theft, and tree poaching—are presented below.

Type I Tree Theft: Timber Trespass as Shared Authority

All timber theft has been officially labeled timber trespass and institutionalized by the Forest Service as part of the commercial enterprise. As this label suggests, the criminal seriousness implied in the meaning of theft is recast into a lesser act of cutting in the wrong place. While officially applied to all forms of tree theft, the meaning of timber trespass is most consistent with the illegal cutting of trees as part of legitimate commercial timber sales. Typically, this form of theft occurs within the operational context of an authorized logging operation and involves cutting outside the boundaries of the prescribed cutting area. Although overharvest is intentional, it most often is considered a “mistake,” based on the view that logging is an imprecise commercial activity compounded by the complexity of boundary marking, thereby making it easy to accidentally cut outside the boundary. The absence of overt criminal intent on the part of the logging contractors is a distinguishing feature of timber trespass.

To many participants, cutting outside the boundaries is viewed as normal industrial practice that is formally expected within the forest community. An LEO explained the basis of this expectation:

All the harvest contracts have a 10% over and undercut provision. Companies are allowed to leave trees or take more because of the “imprecise nature” of the business. In all my years in the Forest Service I have never seen an undercut. They always take the extra 10%.

Clearly evident in the contractual overcut provision is the view that taking “extra trees” is expected, boundaries are ambiguous, and boundary setting and monitoring are shared authority between the Forest Service and the logging community. Less obvious in the overcut expectation is an ambiguity over forest ownership supporting a widely held view that local people, not just the federal government, have entitlement to the forest. To consistently take a 10% overcut does not simply mean more money for the logging contractor, it also reaffirms a sense of shared authority and entitlement. In effect, it legitimizes the question, Whose forest is it anyway?

Type II Tree Theft: Timber Theft as Shared Community Identity and Social Boundary

The most frequently observed form of tree theft is informally known as *timber theft* and is distinguished by a clear intent to illegally take trees that are not authorized by formal regulation or protocol. Two categories of timber theft were observed.

Affiliated timber theft occurs within the auspices of an established logging business and authorized timber sale. Clear intent to take trees by violating boundaries, bidding rules, or volume accounting is apparent. However, the clear intent to violate the law is muted by the legitimacy of commercial affiliation with an authorized sale. Affiliated timber theft also is a highly collaborative activity that requires the participation of many people. It is the complexity of the commercial logging process that serves both to broaden community participation and to obscure, if not mask, the forms of affiliated theft observed and reported below.

Boundary Jumping: Forest Service boundary ribbons marking official sale areas are expanded to enlarge the area and increase the number of trees available. Sometimes, tracer paint is stolen to expand boundaries or mark extra trees to be cut. "No cut" trees are cut and the marks are removed with chain saws.

Bid Rigging: Companies rig bids for timber sales by agreeing before an auction who will bid on what timber sales or who will offer what price.

Brand Switching: The purchaser of two timber sales in the same general area marks logs from the more expensive sale with logs from the less expensive sale, allowing the contractor to pay the lesser amount for the trees.

Scaling Fraud: The log scaler purposely undervalues the wood volume, species, or amount of defect. The log scaler alters previously recorded scaling data after the logs are sent to the mill. Logs are trucked directly to the mill without being scaled.

Load Ticket or Permit Fraud: Load tickets that are to accompany each load are taken from the logs once they are delivered, and reused on subsequent loads before being turned over to the government.

The most distinguishing feature of affiliated timber theft is the widespread community participation, knowledge, acceptance, and support for this form of tree theft. It is a community activity. In the wake of a massive bid rigging and load ticket fraud that occurred 4 years prior to this research, in which millions of dollars of trees were stolen, community members recalled to a news reporter (Hessberg 1988) the community basis of the timber theft:

I think there's not a doggone driver, faller or rigging man who doesn't know about this crooked system. (Retired logger)

Sure, what they were doing was wrong, but everyone had been doing it for years and years. He (bid rigger) just got caught. When (he) was growing up, his father was buying timber, and he'd meet in the parking lot with other buyers, and they'd agree to split up the logs. So he grew up seeing his father do that . . . he thought that was how they did business. (Community member)

We're talking about an ongoing criminal enterprise that's been flourishing for years. (Local sheriff)

The open nature of this form of theft was consistently observed during this research. In a case of boundary jumping, a logging company had purchased a state timber sale that was next to the national forest boundary. The fallers were directed by the contractor to continue cutting into the national forest. When the LEO and researcher discovered the theft, all that was left standing in the middle of several acres of down trees was a United States national forest boundary sign. The fallers had simply cut around it, leaving it obviously visible from a distance.

An unusual form of load or permit fraud, known as transplant theft, was also observed during this study. The Forest Service manages an aggressive reforestation program in which trees are replanted in logged areas. Once these trees have become established and have reached 3 to 4 feet in height, the Forest Service sells permits to individuals that allow them to take a limited number of trees to assist in the required thinning process. These trees can be used for personal use or resold to private nurseries. Permits are sold that allow the taking of 15 to 20 trees per person for \$2 per tree. The trees are resold to nurseries for \$60 per tree. Occasionally, offenders fail to get permits or, more commonly, they take

more trees than allowed. In one such case, two men were observed and subsequently arrested by an LEO for having over 500 unauthorized transplant trees. These and similar observations are surprising in view of the relatively recent (1988) exposure of and subsequent criminal penalties given in the massive timber theft case in the research forest.

The ongoing and blatant nature of these thefts is viewed less as deviance and more as a valuable means to preserve the logging community. A local elected official provided insight on tolerance based on community membership:

Say a logger is fourth generation and everybody knows him. If they're aware he's ripping the Forest Service off, that isn't really considered a crime in this area. (Local mayor)

Affiliated timber theft as a form of deviance serves not as a means to exclude people from the community, but as a vehicle for affirming shared values of family and loyalty. In effect, one role of timber theft is to create community cohesion. Again, in the aftermath of the recent timber theft case, community members provided insight into the stabilizing role of timber theft within the community:

He was taking care of us. His dad was sick and living with us. His nephew had no income and was living with us. At the time we were six months behind on the rent. (Wife of accused log truck driver)

Better to (rig bids) and keep some people employed. (Community leader)

A guy did have a choice—just do it or walk. I should have quit, but I was obligated to my job. I got paid every Friday. There was some loyalty to my company. (Accused logger)

The depth of community loyalty is further evidenced in the way that the community responded to the formal charging of a prominent logging company owner in this bid rigging case. In spite of being convicted of bid rigging charges, the business owner was allowed to stay on the board of directors of the Scaling Bureau that measures logs in the area. In addition, the business owner was inaugurated as president of the 79-year-old Pacific Logging Congress, an international professional logging association. A local community newspaper owner summed up the local status of the offender: "I have nothing but praise for the man."

Predictably, the observed and reported finding that community informers are rare in cases of affiliated theft is consistent with the view that the community supports affiliated timber theft. As an involved logger noted:

I could have squealed, I suppose, but I didn't want to stick my neck out. We were all lucky to hold on to our jobs. The timber industry was caught in a slump, it made crooks out of good guys.

Conversely timber theft also provides a means for community members to actively guard its normative boundaries through overt sanctions. An unwillingness to adhere to the "don't tell rule" is considered a challenge to the community and is met with resistance. During the massive bid rigging case in this forest, one logger who originally cooperated with the investigation was so intimidated that he later refused to testify. Another logger, who did cooperate, reported being run off the road in his car and being shot at just 4 days before he was to testify (Wilson 1988).

Although community informers are rare within the framework of affiliated theft, they are regularly evidenced in a second classification of timber theft defined as unaffiliated

theft. It is in the act of the community telling on violators that the significance of affiliation becomes apparent.

Unaffiliated timber theft occurs when a logging company or operation simply goes into the forest without the auspices of a legitimate timber sale and cuts trees. Outside the veil of a formal timber sale framework, the type II tree theft becomes unacceptable. In these cases, community informers are much more likely to notify the Forest Service of the violation. An LEO provided insight on why informers are more common in unaffiliated theft:

Most of my informers come to me about unauthorized timber harvest violations (unaffiliated theft). They are concerned about unfair advantage. When someone can simply go take trees in large quantities it creates an uneven playing field for the rest of the industry. They don't like it.

It appears that unaffiliated theft violates the community rules of engagement between the industry, the Forest Service, and the community. Unfair advantage signals unpredictability and system destabilization. By avoiding the protocols of acquiring a formal timber sale, nonaffiliated theft removes both the Forest Service and the logging community from the pattern of accommodation that characterizes affiliated theft. It is the blatant nature of the violation that links the "honorable" profession with dishonesty, while publicly challenging the authority of the Forest Service and the efficacy of the LEOs. The subsequent tarnishing of the logging community image invites increased scrutiny and demands official action.

In one such case, a logging contractor had taken over 100 fir trees and was gone before an informant alerted the LEO. The contractor had been able to set up a logging operation, take the trees, and leave without detection. In this case, a community member came forward and served as an informer to alert the LEO of both the offense and the offender. It seems that community members were complaining and expected official sanction. In effect, the unaffiliated theft challenged the community customs that ensure stability.

Type III Tree Theft: Tree Poaching as Shared Deviance and Selective Exclusion

The third form of tree theft is commonly called tree poaching. This form of theft involves the taking of single trees by individuals or small groups. Cedar is generally the tree of choice and, as discussed below, is extremely valuable, bringing large sums to the poacher.

Tree poaching accommodates the sense of community in four important ways. First, it is one mechanism for establishing status and hierarchy to community relationships along with a sense of local history through social mentoring. Second, it is a means in which any member of the community can gain access to status associated with logging and the local wood based economy. Third, tree poaching requires the development of a network of trust based relationships to realize the primary goal of economic reward. Finally, it is the principal means for excluding unwanted community members through the formal labeling of tree theft as a criminal act.

Tree Poaching as Social Learning. Tree poaching is an acquired skill that is taught through family and community relationships. Fathers teach sons, and other community "folk heroes" take younger tree thieves under their wings to teach the techniques. One LEO in the study was able to identify three generations of tree poachers who were not family members that had been "raised up" by a local man who was in his late seventies.

This man was known as a local outlaw with a reputation for confrontation. These mentoring relationships are ordered in a hierarchy based on age, experience, and proven ability.

Demographic data obtained from the Forest Service records further elaborate on the nature of the tree poacher. A review of all the tree poaching cases ($N = 49$) in one forest district indicates that the tree poacher is predominately a male (44, or 90%), in his early to mid-thirties (mean = 33.8 years), of Caucasian descent (30, or 61%), and lives within the area immediately located near the national forest (42, or 86%). (These data should be considered as a tentative profile, given the small number of cases reviewed.)

Three common techniques of tree poaching are generally passed along through social mentoring and were observed during the study:

Convenience Poaching: This form of poaching occurs along established roads where valuable trees are located within a close, often uphill, proximity. This increasingly rare form of poaching (most valuable trees near roads have been taken) requires local knowledge of large trees next to a logging road, cutting them down, and loading the bolts (small sections of wood cut from tree) into a truck.

In a case of convenience poaching observed during this study, an old-growth 800-year-old cedar tree, located 10 feet from the side of a secluded logging road grown over from minimal use, was illegally harvested. The tree had been high graded, a procedure where the first 40 feet of the best wood is taken and rest is left. The officer estimated the illegal market value of the wood to be between \$2,000 and \$5,000.

Mini Highline Poaching: This form of poaching is used for those trees that are uphill and a distance from the access point. Knowledge of basic rigging techniques is required. A number nine wire is run from the down trees and bolts are connected to a pulley wire that runs downhill to the loading point.

Downhill Backpack Carry: A less used, if not last resort, method is simply to load the wood onto a packboard and then pack it out to the load point. Strength and endurance, time-honored qualities of the respected logger, are required.

In one case, the backpack carry was utilized by a man whose property bordered on national forest land. The man was photographed making regular trips to poach wood, taking about 2 cords a month for several months before being apprehended.

It is instructive that the skill of tree poachers is known and admired among LEOs. Numerous unsolved cases of tree poaching were recounted, along with the various techniques used, such as running exhaust hoses from chain saws into water cans to muffle the sound of cutting at night. In the case of the man who was carrying the cedar downhill on his back, the officers greatly admired his strength and decided not to arrest the man until a more "controlled time" for fear of the consequences of a fight with such a poacher.

Virtually every district in the research forest has locations where notable thefts have occurred, each with a "story" involving well-known "locals." Together, the telling of these stories and the mentoring relationships surrounding tree theft serve to pass on community history as social learning that places in context tree theft techniques and locations in the forest.

Tree Poaching as a Gateway to the Local Economy. Tree poaching can be extremely profitable. Depending on the location, an old-growth cedar tree can be removed in 1 to 2 days. The tree is sold to local cedar mills for half the market price on a tax-free basis and can bring between \$5,000 and \$10,000. During this study, a cord of legal shake bolts was selling for \$800. In order for the wood to be effectively marketed, however, the mill

owner must agree to the illegal relationship, because all unprocessed wood transported out of the forest is required to have formal written permits and records must be kept by the local mill accepting the wood. Poaching relationships are based on a mutual trust that, once the illegal transaction occurs, the other will not tell the authorities. In effect, tree poaching requires the development and maintenance of community relationships before profit can occur. As a deviant subculture, tree poaching provides a gateway for accessing the local economy that otherwise may not exist for some criminal members of the community.

When legitimate access to the forest is constrained, such as is the case with the spotted owl closure, an increase in tree poaching may be expected to enable otherwise honest loggers to make ends meet. As one LEO observed:

There are two reasons for stealing trees. Either it's a guy's criminal nature or he has no choice. He needs the money.

Data from Forest Service files support the view that tree poaching will increase when access to the forest is constrained (Figure 1). In 1991, timber harvest in the research forest was closed by court order to protect the habitat of the endangered northern spotted owl. Documented tree poaching increased subsequent to the closure.

Unlike animal poachers who have multiple motivations to offend (Muth and Bowe, 1998), tree poachers are predominately motivated by financial profit. Three types of tree poachers can be classified by their profit motives:

Desperate Poacher: This type of offender turns to tree poaching as a last resort for making ends meet. This offender often is unemployed or underemployed, and is having difficulty making enough income to meet the basic requirements of life.

Second Job Poacher: This type of poacher is an occasional offender who poaches trees to supplement a steady income from an established job. The extra income can be used as a quick route to a new pickup truck or other lifestyle extras.

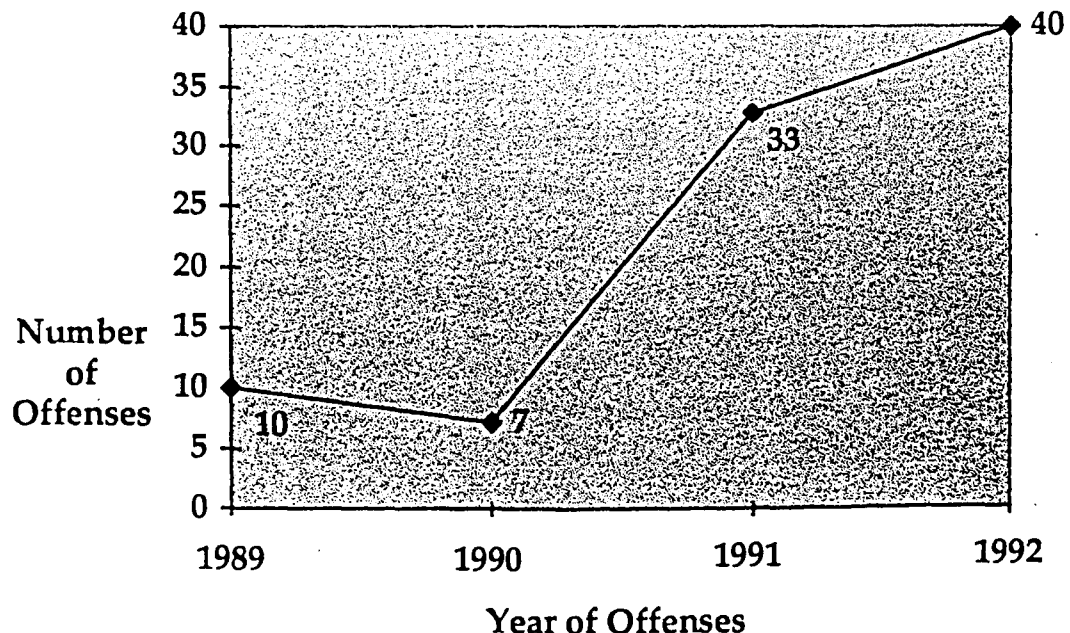


Figure 1. National forest tree poaching 1989 to 1992.

Criminal Poacher: This offender often is precluded from legitimate employment because of a criminal history or outstanding warrants for arrest. It commonly is reported that the criminal poacher is associated with drug use and drug dealing. Stealing trees is a convenient way to earn an income without being tracked by the usual paperwork and process of regular employment.

Tree poaching provides a means for people to participate in the community without engaging in more traditional types of criminal behavior and without being publicly identified as criminal. The community tolerates poaching because it can serve as an alternative to more disruptive behavior.

Community Exclusion Through Selective Labeling. Tree poaching, while tolerated by the forest community, enjoys the lowest community status of the three forms of tree theft. Often referred to as "shake rats" (a general term for both authorized and unauthorized hand harvest of down cedar trees), tree poachers are most closely aligned with the traditional definition of a thief. Correspondingly, those LEOs who were most aligned with the traditional model of police focused predominately on tree poachers. Quite simply, these offenders are more likely to have the characteristics commonly held by criminals. In one of the most notable tree poaching cases in the forest, an LEO discovered, and subsequently captured, one of the most notorious local criminals in the act of stealing an old-growth cedar worth over \$20,000. Using a heat-seeking alarm hidden on the already down tree, the alarm activated the personal telephone of the LEO when the offenders started their chain saws. The known local criminal, who was known to fight the police, was captured single-handedly by the female LEO and, subsequently, sent to prison for felony theft of federal timber. What is most notable about this case is the degree of subsequent community respect for the LEO for "bringing in" this "undesirable" member of the community. The respect was enhanced by the fact that the officer was a woman and that the outcome of the arrest was the expulsion of the offender from the local community.

Accordingly, it was common for community members to inform LEOs of the identity of tree poachers and, in one case observed during this research, the impending theft planned by an offender. The LEOs reported that informers often are motivated by an opportunity to "get even" with a poacher who has somehow wronged them. It is noteworthy that, of the three types of tree theft, tree poaching is the primary focus of the LEOs and accounts exclusively for those people who were formally labeled as "criminal" by the Forest Service during this research.

Conclusion

Tree Theft as a Spectrum of Deviance

As Figure 2 suggests, the types of tree theft form a spectrum distinguished on two dimensions: (1) by the level of publicly exposed deviance, which is closely aligned with (2) intent and the degree of affiliation with a legitimate logging business working an authorized timber sale.

The normative boundary of the forest community seems to be firmly drawn by the conditions under which the label of "crime" is applied to tree theft. In all cases, the shared meaning of tree theft as deviance only approaches the definition of a crime when the acts become publicly salient. Two factors seem to determine salience: public consciousness and the extent to which the behavior moves from affiliation with a legitimate commercial logging operation toward more individual acts of crime committed in relative

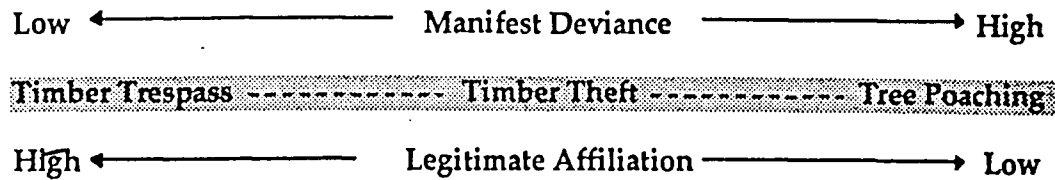


Figure 2. Tree theft spectrum.

social isolation. Although all three types of tree theft are technically available for the label of crime, only tree poaching was formally treated by the Forest Service as a criminal act in this study. It is in the inclusion and elimination of the types of tree theft from the roster of crime that the functional importance of tree theft to the forest community becomes apparent.

The logging community accommodates tree theft only when it contributes to community cohesion and stability. Tree theft enables widespread constructive participation in the community. This participation can be passive, as in the case of knowing but not telling, or it can be active, as in the case of a participant who takes trees in the service of an economic system that demands wood. The litmus test of acceptability centers on contributing to community stability. Community sanction for ostracizing those who tell is justified to preserve the predictability of profitable harvest. Conversely, denigration of tree theft and the expulsion of tree thieves from the community becomes necessary to prevent heightened police scrutiny, while preserving the reputation of honesty that self-defines the community. Subsequently, the status degradation ceremonies of criminalization are reserved for those who are perceived to threaten the symbolic or physical safety of the community. When tree theft gets out of hand (i.e., becomes more blatant or is distanced from the legitimizing "cover" of legal operations), patterns of accommodation are threatened as tree theft challenges the sense of community.

Additional data from this study reported elsewhere (Pendleton 1997) demonstrate that patterns of accommodation also are a part of Forest Service practice. These patterns of accommodation seem rooted in an organizational culture designed to support resource-dependent communities and, more fundamentally, a forest based rural culture. One important implication of the findings of this research may be the need for an agency other than the Forest Service to address timber theft. Given the close functional and cultural ties of the Forest Service to the economic stability of the forest community and the potentially stabilizing role of tree theft in the community, it may be unrealistic to expect the Forest Service to aggressively pursue the practitioners of tree theft. This reluctance may be especially acute for violations like timber trespass that are characterized by low public visibility and high legitimate affiliation. Finally, the results of this study seem to suggest that financial incentives for reporting tree theft or for creating legal opportunities to work may be useful, given the fundamental financial motivation for stealing trees. Yet, as long as tree theft continues to service the stability of the forest community, it will persist along with a complex system of accommodation.

References

- Andrews, R. 1984. *This was logging*. West Chester, PA: Schiffer.
- Atkinson, P., and M. Hammersley. 1994. Ethnography and participant observation. In *Handbook of qualitative research*, eds. N. K. Denzin and Y. S. Lincoln, 248–261. London: Sage.

- Becker, H. 1978. Outsiders. In *Deviance*, eds. E. Rubington and M. Weinberg. 11-24. New York: Macmillan.
- Brown, L. 1996. Weyerhaeuser discounts charges but says it'll investigate. *On the record*, 5 April, 23. Washington Forest Protection Association, Olympia, Wash.
- Clark, J., and D. McCool. 1985. *Staking out the terrain: Power differentials among natural resource management agencies*. Albany, N.Y.: State University of New York Press.
- Durkheim, E. 1965. *The division of labor*, Transl. G. Simpson. New York: The Free Press. (Originally published in 1893.)
- Egan, T. 1990. Dissidents say Forest Service shifts its role. *New York Times*, 4 March, 1.
- Erikson, K. 1966. *Wayward puritans*. New York: John Wiley.
- . 1978. Notes on the sociology of deviance. In *Deviance*, eds. E. Rubington and M. Weinberg, 25-29. New York: Macmillan.
- Gibbs, J. 1981. *Norms, deviance, and social control*. New York: Elsevier.
- Hessberg, J. 1988. New ethics in the forest. *Seattle Post-Intelligencer*, 13 June, A4.
- McCormick, J. 1991. *Testimony of John McCormick before the House Post Office and Civil Service Subcommittee on Civil Service on whistleblower protection in the Forest Service*. Washington, DC: U.S. Government Printing Office.
- Morgenroth, C. 1991. *Footprints in the Olympics: An autobiography*. Fairfield, Wash.: Ye Galleon Press.
- Muth, R. and J. F. Bowe Jr. 1998. Illegal harvest of renewable natural resources in North America: Toward a typology of the motivations for poaching. *Society & Natural Resources* 11:9-24.
- Pendleton, M. 1997. Looking the other way: The institutional accommodation of tree theft. *Qualitative Sociology*. 20:325-340.
- Reiman, J. 1995. *The rich get richer and the poor get prison*, 3d ed. New York: Macmillan.
- Schur, E. 1971. *Labeling deviant behavior*. New York: Harper.
- Swanson, C., and L. Territo. 1980. Agricultural crime: Its extent, prevention and control. *FBI Law Enforcement Bulletin* 49(5): 8-12.
- Taylor, S. 1994. *Sleeping with the industry: The U.S. Forest Service and timber interests*. Washington, D.C.: The Center for Public Integrity.
- Turchie, T., and B. Williams. 1979. Timber thefts. *FBI Law Enforcement Bulletin* 48:1-5.
- U.S. House Committee on Appropriations. 1992. *U.S. Forest Service administration of timber contracts*. Staff report.
- Wilson, D. 1988. Bid rigger has respect in Forks. *Seattle Post-Intelligencer*, 14 June, A-4.

10. Vandergeest, Peter. 1996. **Mapping Nature: Territorialization of Forest Rights in Thailand.** *Society and Natural Resources* 9:159-175. Reprinted with permission from Taylor and Francis.

Mapping Nature: Territorialization of Forest Rights in Thailand

— PETER VANDERGEEST

Department of Pacific and Asian Studies
University of Victoria
Victoria, British Columbia, Canada
and
Faculty of Environmental Studies
York University
North York, Ontario, Canada

In Thailand, as elsewhere, the administrative definition of forest has changed from one based on classification by species to one based on territory. This process was an important facet of the more general process by which the central government claimed a monopoly on the administration of property rights to natural resources. The process took place in three stages: First, the government declared that all territory not claimed by permanent cultivators or other government agencies was forest under the jurisdiction of the Royal Forestry Department. Second, it demarcated the forests into reserve and protected forests. Third, it mapped all forest land as well as nonforest land according to land use classifications, which became the basis for policies to control occupation and use. These strategies did not allow for local input into land use planning. As a result of this lack of state capacity, and interbureaucratic competition, the Thai government failed to control rural land use.

Keywords Asia, environment, forest, history, land use, law, territory, Thailand

Territorialization

We have all heard something of the story of how colonial and postcolonial states in the Third World have attempted to subvert or take over local resource management regimes. I will show how a key element of this process is what I call "territorialization" of state control. By this I mean the process by which states attempt to control people and their actions by drawing boundaries around a geographic space, excluding some categories of individuals from this space, and proscribing or prescribing specific activities within these boundaries.¹ Rights to land and its products have been territorialized throughout Southeast Asia, and attention to this process helps us to better understand how the state undertakes land use control and land use planning, and by implication, some of the difficulties in programs to decentralize land use planning.

Received 16 May 1994; accepted 24 April 1995.

The author thanks Nancy Peluso, Jill Belsky, Bruce Koppel, Charles Mehl, Jeff Fox, Luin Goldring, and an anonymous reviewer for their helpful suggestions. Charles Mehl, David Thomas, and Chusak Wittayapak helped with the collection of documents and by sharing their considerable knowledge of the issues covered in this article. This research was made possible by NSF Grant Number SBR-9310921.

Address correspondence to Peter Vandergeest, Faculty of Environmental Studies, York University, 4700 Keele Street, Toronto, Ontario, M3J 1P3, Canada.

Territorialization can be considered a subset of property relations more generally, relating specifically to property relations to space. As such, it involves two key activities: communication and enforcement. How rights to territory are communicated and enforced can differ dramatically. When rights to territory are locally recognized and enforced, the communication of these rights takes the form of many kinds of locally recognized markers—trees, rocks, and so on. Property rights are often held to specific products or resources, separately from the land where that product is obtained. People will allocate rights to trees, tree products, other vegetation, and wildlife according to different rules, depending on the ecology of these items, the value of these products, and local social relationships. All these rules are remembered by virtue of living in the area for long periods of time.

When state bureaucrats and national courts take over the administration of rights to natural resources, the communication of rights needs to take a form that will continue to be understandable to any official who occupies the relevant administrative post. In practice this means that state agencies cannot rely on individual or group memory, and thus can recognize only written forms of communication. The key written text for states undertaking territorial strategies is the modern map. Modern maps have the unique feature of representing complex realities as sets of homogeneous areas (forests, soil classifications, etc.) defined by their borders. State agencies therefore have difficulty recognizing and registering property rights in rural areas other than rights to land. It is possible to map land rights; it is more difficult to map overlapping rights to specific products. As a result, modern states tend to replace species control with territorial control.

When it comes to forests, other considerations deriving from European property theory come into play as well. States generally define land that is not appropriated by private individuals or households as “nature.” However, territorial states cannot just leave major portions of their territory to nature—and potentially subject to appropriation by other territorial states. This kind of space, which used to be ambiguous with respect to sovereignty (Thongchai, 1988), has thus been mapped and declared off limits to any act of appropriation other than those specifically licensed by the relevant state agency. Most of it has been classified as forest. When a forest is defined as a territory, it becomes less a kind of vegetation than an area on a map. As people in Thailand have discovered, today they need access to government maps to know where they stand with respect to the forest.

Turning to enforcement: Local enforcement can take very different forms, and in a particular place there may be many different sorts of enforcers. In some cases enforcement works through local consensus or at the direction of respected kin or community elders, and sanctions for violations might include being ostracized, losing future rights, and so on. In other cases, especially in recently settled areas, local influential people enforce land rights through the threat and use of violence. States enforce property rights as they enforce laws more generally, by claiming a monopoly on the use of coercion and giving that right to different state agencies—the military, the police, and foresters.

Three Stages of Territorialization

Territorial strategies have replaced an older control strategy in which local rulers taxed the extraction of specific commercial forest products, while otherwise ignoring how local people used the forest. In Thailand this process took place in three stages. The first stage was the declaration that all unoccupied land within the national boundaries was state forest under the jurisdiction of the Royal Forestry Department. The second was the mapping of forests in Thailand into reserve and permanent forests, within which clearing and many other uses were prohibited. Third was “functional territorialization”: the remapping of

forest and other areas according to scientific criteria such as slope, soil type, and watershed classification, which then became the basis for laws prohibiting and prescribing specific activities in these areas.

Although it seemed as if the new forms of control would simplify forest administration, this approach has so far been a massive failure. As late as the 1950s probably over half of Thai national territory was still under forest cover; today, the figure is between 10 and 20%. This is despite the demarcation of almost half of Thai territory as forest since the early 1960s.

I will discuss three important reasons for this massive policy failure. The first was interbureaucratic competition between agencies such as the Ministry of Interior and the Forestry Department. The second was that the simplifications introduced by modern forest management often contradict the complex property relations of local communities. The third reason was that the Thai state has not had the capacity to administer and enforce forest policies modeled on the forest administration developed in British India and Burma.

Stage 1: Territorial Sovereignty and Product Controls

The first stage in the territorialization of forest control in Thailand was the declaration that all unoccupied land within newly defined national boundaries belonged to the state. The immediate reason was British pressure on the Bangkok monarchy to exert greater control over teak-producing areas in what is now Northern Thailand. Beginning in the 1880s, large quantities of teak from Chiang Mai, destined mostly for British shipbuilding, made it one of Siam's major exports (Dickson, 1908; Mekvichai, 1988). The extraction of teak was under the control of local lords in the north, who gave concessions in return for fees and gifts. There were many problems, some due to practices such as double leasing, and some because the local lords did not really control either the territory or the minor rulers in outlying areas, so that loggers and teak traders were subject to attack by robber gangs and to additional claims by minor local lords. The British threatened to pacify the area themselves if Bangkok did not do so, and thus the Siamese in Bangkok began to exert control to avoid a British takeover of the north.

Beginning in the 1890s, Bangkok centralized the civil administration under the Department of Local Administration in the newly formed Ministry of Interior. The ministry sent provincial governors and district officers to replace local lords, and organized settled rural areas into villages with village heads (Bunnag, 1977). This, however, still left land that was not settled, from the point of view of Bangkok.

The Royal Forestry Department came into the picture to deal with this unoccupied land. The department was set up by H. A. Slade, a British forester hired from the forest service in British India and Burma in 1896. Slade was the director of the Forestry Department until 1901, after which another Englishman, W. F. Lloyd, was director until 1923 (Government of Thailand, Krom Paamai, 1958). The Forestry Department was dominated by Siamese foresters trained in the Indian forestry school until well after World War II, and during this period, British India and Burma became the model for forestry in Thailand.

In a manner consistent with this model, in 1899 the Forestry Department claimed jurisdiction over all otherwise unoccupied and unclaimed land within the newly defined boundaries of Siam. In effect, the forest was defined as land that was not cultivated or otherwise claimed by any person or agency. This included most of the land area in Thailand. At the turn of the century 75% of the territory of the future Thailand

was covered with forest; as late as 1953 "forest" covered about 60% of the national territory.

The creation of the Forestry Department, in other words, should be understood not just as a means by which the central government could appropriate income from the extraction of teak. It was also an assertion of territorial sovereignty in the face of expanding colonial regimes who accepted only territorial claims as legitimate (Thongchai, 1988). It is notable that this tied the Forestry Department to national security concerns, which linked it directly to the military force of the state. This connection arose again later as concern over "forest" as a refuge for anti-state insurgencies, and as the military framed environmental degradation as a national security problem.

Although the central government claimed "ownership" of forest lands through the Forestry Department, they did not demarcate the forest and attempt to exercise territorial control until the late 1930s, and until the 1960s the dominant approach was product rather than territorial regulations. The Forestry Department focused its efforts first on facilitating and supervising the extraction of teak by British companies, and second on taxing other commercial forest products.

The system of managing teak was borrowed directly from Burma. It fixed the minimum girth below which trees could not be cut, and it fixed a cutting cycle based on calculations of how long it takes for the smallest tree in the girth category below harvestable trees to grow to the minimum harvestable girth. The Siamese adopted the same cutting cycle (30 years) as did the Burmese (Siam, 1929:10).² Most early legislation thus concerned teak either directly or indirectly. For example, the Forest Preservation Act of 1897 prohibited the felling of teak trees smaller than 5 *kam* (2.1 m) in girth, and the 1897 Teak Trees Preservation Act prohibited the logging of any teak trees larger than 5 *kam* (2.1 m) in girth without first receiving permission from the Forestry Department.

This borrowed model was, however, never effectively implemented. A stump survey in the North during 1937–56, and other observations, indicate that the amount of teak cut illegally was 1.5 to 3 times the legal cut (Feeny, 1988). Most large-scale illegal logging was probably practiced by groups of outsiders working directly for influential teak merchants (Mekvichai, 1988), and under their protection. Other problems included endemic theft of floating logs for local use or resale, which ended only when the major means of transport shifted to truck and rail (Mekvichai, 1988), and the lack of enforcement of logging regulations. For example, the requirement that lessees plant replacements for what they harvested was often ignored, or the seedlings did not survive due to a lack of follow-up care.

The control of nontek forest products was based on the Forest Conservation Law of 1913, and the 1941 Forest Act that replaced it and subsequent laws and regulations. These acts contained provisions for placing species into one of two reserved categories: category 2, rare and important species, and category 1, the remainder usable for domestic trade and consumption (Thirawat, 1955; see also Government of Thailand, 1941). Licenses and fees were required to harvest reserved species (Pragtong & Thomas, 1990). This approach was based on 19th century policy in British India and Burma, where the system of reserved species was the basis of forest policy until laws in the 1880s initiated forest demarcation (Haeuber, 1993). Local people could still legally harvest any nonreserved products (Hafner, 1990), and they could harvest reserved products for housebuilding, religious, or public purposes, provided they obtained permission and followed regulations regarding quantity and so on.

After the 1913 law came into effect, the Forestry Department placed many species on the reserved list, and continued to add to this list as particular species became com-

mercially valuable.³ By 1955 hundreds of forest products were reserved (cf. Thirawat, 1955). The department also issued many regulations specifying the mode of harvesting. These laws included, for example, rules and fees for the collection of beehives, tapping and burning takien or *yang* trees for resin or oil, and turpentine production. The regulations issued for tapping takien trees are an example of these kinds of laws and their effects. In 1921 the government set a fee of 25 satang (1/4 baht, a considerable fee at the time) per tree to be collected by a Forestry Department official. Only trees marked by Forestry Department officials could be tapped; these were to include only trees with girth greater than 200 cm and a height of at least 15 cm. The location of the tapping hole, its maximum size, the minimum spacing of holes on the tree, and the tapping season were also specified or given over to the control of local Forestry Department officials.

In most areas these detailed laws and regulations had little impact on the way local people used the forest, for a number of reasons. First, the 1913 and 1941 laws did not bar people from access to the forest products that were not used commercially, and local people could harvest reserved products for housebuilding, religious purposes, or public purposes provided they obtained a permit. Second, in many areas fees and use regulations were not enforceable. For example, Ananya and Nipon (1991) reported that certain forests in the central region were initially used mostly by collectors of resin (*yang*). Although the Forestry Department claimed jurisdiction over the extraction of resin, in practice rights to tap resin trees were claimed and enforced by local influential people who hired workers to tap and transport the resin. Third, policies based on species control were in many respects similar to the many taxes on commercial products, including many forest products, which the monarchy collected through tax farms during the 19th century (Lysa, 1984). The key changes were that the tax farms were replaced by tax collection through a centralized bureaucracy, and the 19th century monarchy did not attempt to impose regulations on the mode of extraction. It could be argued, however, that the primary goal of forest laws during both the 19th and early 20th centuries was revenue collection (Chalermrath, 1971). State agencies acted more like a mafia extracting its share of the profit in exchange for noninterference than an agency able to effectively claim and administer territory.

The government continued to encourage new clearing and cultivation of land throughout this period, as a way of increasing agricultural production and exports. Although the 1941 Forest Act provided that no person could clear or burn forests without permission from a competent official (Chalermrath, 1971), this law was not enforced, or Ministry of Interior officials readily gave the necessary permission. New cultivation of land without permission was not specifically prohibited until the Land Code of 1954, whereas the Civil and Commercial Code (enacted in stages during the 1920s and 1930s) specifically allowed persons to claim property, including land, through an act of appropriation and use. By clearing and cultivating land, peasants effectively took land out of the jurisdiction of the Forestry Department. Without demarcated forests, the Forestry Department could not legally prevent these acts of territorial appropriation.

In summary, despite the formal claim to ownership of noncultivated land as forest land, until the 1950s the dominant approach was that of control and regulation over the tapping, cutting, and use of specific species and products, not over entry and activities within a demarcated territory. The government did not try to restrict entry into forests; to the contrary, the attitude of most government agencies remained one of encouraging peasants to clear nontek forests for cultivation. Peasants slowly expanded cultivation into formerly forested areas; however, the conditions for rapid deforestation (discussed later) were only just appearing. As late as 1961, most estimates show that forests still

covered more than half of the national territory, although the rate of deforestation seemed to have increased during the 1950s (Feeny, 1988).⁴

Stage 2: Forest Demarcation

The next stage in the territorialization of resource control was the demarcation of reserve and permanent forests. The main purpose of forest demarcation was to stop peasants from taking land out of the forest, and thus out of the jurisdiction of the Forestry Department. It was also an attempt to displace the complexity of the species and product controls by a more simple and seemingly more enforceable territorial approach.

Although territorial approaches were proposed by the Forestry Department as early as 1916 (Chalermrath, 1971; Feeny, 1988), enabling legislation was not passed until a nationalist group of officials and military officers overthrew the absolute monarchy in 1932. In 1938 the new government enacted the Forest Protection and Reservation Act,⁵ which empowered the Forestry Department to map and then declare specific territories to be either "protected" or "reserve" forest.

It is worth reiterating the degree to which Siamese forest policy was based on forest policy in India and Burma. The Forestry Department was set up by forestry officials hired from the service in India, and Siamese officials were sent to the Indian forestry school for training (Banijbatana, 1962; Feeny, 1988). In India and Burma territorialization was initiated by forest rules adopted in 1856 (in Burma) and 1865 (in India). However, these provisions stipulated that forest protection should not affect existing rights (Bryant, 1993), and under these conditions the reservation of forests proceeded very slowly. This changed with the Forest Acts in 1878 (India), 1881 (Burma), and 1882 (Madras),⁶ which extinguished all but those rights explicitly recognized in settlements with people living in the vicinity of the forest reserves and initiated a rapid mapping of forest areas (Bryant, 1993).

In Thailand, the overall structure of the 1938 Forest Protection and Reservation Act⁷ was modeled on the India and Burma Forest Acts, and many phrases were copied and translated directly from these acts. As in India and Burma, the legislation created two categories of territorialized forest. Protected forests were created primarily to prevent clearing, cultivation, and burning; local inhabitants were permitted to collect forest products and timber in protected forests subject to the product-specific regulations outlined above. In reserved forests use regulations were more stringent: inhabitants were also forbidden to graze animals or damage the forest in any manner, and permits were required to legally extract any forest product, including nonreserved products such as animal products, soil, rock, gravel, oils, and so on (Government of Thailand, 1939; Thirawat, 1955).

Although the Thai law was based on forest law in British India, there were also important differences, some of which preserved local access. First, the Indian and Burmese laws specifically prohibited trespassing, whereas the Thai law permitted entry and use of forest products for ordinary livelihood purposes without permits. Second, the procedures for demarcating forests were much more complicated and required greater local consent in Siam than in the British colonies. The allowance for local use of forest products after demarcation and the requirements for extensive local consultation and consent during demarcation were contained in the ministerial regulations attached to the act and contradicted provisions in the act prohibiting a wide variety of uses. These regulations probably represented the influence of the powerful Ministry of Interior. Finally, unlike the British colonial laws, there were no provisions for the demarcation of village forests, which has become particularly significant during the 1990s as various groups pressure the government to facilitate more community forest management.

In the context of the slow rate of forest reservation subsequent to this act, it is worth noting in detail the procedures for demarcation. When the Forestry Department wanted to declare a protected or reserved forest, the minister had to create a committee composed of one official from the provincial administration, one official from the district administration, and one official from the Forestry Department. This committee was directed to check the area to be declared and to publicize its intention by posting notices in a variety of public places in the community. The committee was also required to investigate how nearby villagers used the forest, in part by calling a meeting of village heads⁸ and the people of the area. During this meeting the committee was directed to record forest uses as reported by local people, to the satisfaction of the villagers, who then signed off on this record.⁹ In the case of protected forests, the committee would decide whether to permit continuation of traditional uses in the forest or withdraw them. If they withdrew them, the committee would submit a recommendation for appropriate compensation to the minister. If anyone disagreed with the process they could appeal to the minister, whose decision was final. Procedures for declaring forest reserves were similar, although given the severe curtailment of access to the forest, the committee was empowered to let those people who extracted wood and forest products continue to do so without obtaining new permits. If anyone had state-recognized rights to land in the proposed area, that area had to be excluded from the protected/reserve forest.

The makeup of the local committee is also significant: two non-Forestry Department officials (probably Ministry of Interior officials) and only one Forestry Department official.¹⁰ As in Burma (Bryant, 1993), officials in the Thai Ministry of Interior were concerned more with civil peace than with forest protection (Chalermrath, 1971). Although the Forestry Department was moved out of the Ministry of Interior in 1921, ending up in the Ministry of Agriculture in 1935 (Banijbatana, 1962; Riggs, 1966), the territorial organization of the Forestry Department continued to be based on that of the provincial administration. The provincial and district forest administrators were directly supervised by the provincial governors and district officers (Chalermrath, 1971). Provincial governors, for example, recommended promotion for local forestry officials, although the decision was made by the Forestry Department.

Although the actual procedures may have differed from the formal ones, the complexity of these procedures and the makeup of the committee helps to explain the slow progress of demarcation during the next 25 years. Perhaps because the rights to be extinguished in protected forests were less than in reserve forests, most of the initial efforts were toward demarcating protected forest. Thus after 16 years, in 1954, about 34,000 km² had been declared protected forest, whereas only 500 km² had been declared reserve forest. The total area declared protected or reserved forest represented about 7% of the total national territory (Government of Thailand, 1957). In 1953 and 1954 the Forest Protection and Reservation Act was revised to allow for demarcation of both types of forest by ministerial regulations rather than royal decree, a change intended to make the procedures easier (Chalermrath, 1971), and during the next 10 years the government gave more emphasis to reserve forests. By 1964 protected forest area had changed little from 1954, while about 32,000 km² had been declared reserve forest.¹¹

The early 1960s were a major transition period in the administration of forests in Thailand. Previous to this various governments had apparently tried to amend forest laws to make them less "lenient" but were turned down by parliament (Banijbatana, 1962). After Sarit's military coup in 1958 parliament was removed as an obstacle, and Sarit enthusiastically adopted an ecological rhetoric that defined forest destruction as an act against the nation (Chalermrath, 1971). The government amended the Forest Act in 1960

and 1961 to abolish the provision allowing local people to cut timber for their own use or for housebuilding, and to increase penalties for breaking forest laws. The Forestry Department's ability to mobilize its own means of coercion was increased by the establishment of the Forest Police and Forest Protection units (Banijbatana, 1962; Pragtong & Thomas, 1990), although the Forest Police division remained under the command of the Department of Police (in the Ministry of Interior), not the Department of Forestry (Chalermrath, 1971). The 1960 Wildlife Conservation and Protection Act and the 1961 National Park Act initiated the demarcation and protection of national parks and wildlife preserves.

Most important, in 1964 the National Forest Reserve Act replaced the 1938 Forest Protection and Reservation Act, and made the procedures for declaring reserve forests less subject to community discussion and consent. The government committed itself to maintaining 50% of national land area in forest and to rapidly demarcating this area as reserve forests. The demarcation of less restrictive protected forest was halted. The government also greatly increased the penalties for violations of the regulations on the use of reserve and protected forests (Chalermrath, 1971).

The new procedures were key to facilitating rapid demarcation. Under this act new forest reserves were created by ministerial regulations issued by the Minister of Agriculture. Copies of ministerial regulations for creating new forest reserves had to be posted in the district office and appropriate places in the local villages. Persons claiming any rights to forest products had to file a written application at the district office, which then forwarded it to the local investigating committee. This committee was now composed of one member of the Forestry Department, one representative of the local administration, one representative of the Land Department, and two members appointed by the minister. If we assume that the appointed members would be sympathetic to the regulations issued by the minister, this would typically give the Forestry Department three members out of five. Voting rules (each member had one vote, the elected chair was tie-breaker) suggests that the composition of the committee was planned with the intent of taking effective control over demarcation away from local Ministry of Interior officials and giving it to forestry officials.

This committee made inquiries into appeals and fixed compensation. Committee decisions could be appealed to the minister, whose decision was final. The procedure had no allowance for public meetings, the local village heads did not need to sign off on the proposed demarcation, and there was no inquiry into local forest use apart from those initiated by written appeals.

The area declared reserve forest increased rapidly following this law. Ten years later, in 1974, the area declared reserve forest reached 32% of national territory (165,274 km²), and by 1985 this had reached 42%. Total demarcated territory under the jurisdiction of the Forestry Department, including national parks, had reached 48% of national territory by the 1990s. Demarcation has changed the effective legal definition of the forest from land not legally claimed and cultivated into land demarcated as reserve forests. The reserve forests rendered past regulations on the collection and use of forest products less significant, although the lists of reserve species were maintained and local people caught possessing these species were fined.

The new approach, however, did not solve the Forestry Department's problems. The Forestry Department has lacked the capacity to enforce forest regulations, and no more than a third of demarcated forest is now covered with vegetation that we might identify on sight as "forest." The new forest territories contain millions of cultivators. Forest vegetation is as likely to be corn or cabbages as trees.

There were a number of reasons for this occupation of the forest, most of which have been reviewed by other authors (e.g., Feeny, 1988; Hafner, 1990; Hirsch, 1993; Lohmann, 1991; Prayong & Bantorn, 1991; Shalardchai, 1989; Tongroj, 1990). First, by rapidly and unilaterally demarcating such a large territory as reserve forest the government enclosed many cultivated areas, especially the swidden fields of unregistered upland peoples (hill tribes).¹² Second, about 1 million households (probably 5 or 6 million people) had moved into forest reserves by 1982. To put this in perspective, by the 1980s 20–30% of all cultivators in Thailand worked land that was mapped as reserve forest, and approximately one-third of all farmland in Thailand was inside the reserve forest (Hirsch, 1993; Tongroj, 1990).

A number of factors facilitated settlement. The most obvious was a general increase in population combined with the continuation of a pattern in which older children moved to clear land in frontier areas if their parents' land was insufficient to divide evenly among all the children. But this pattern did not occur in a political and economic vacuum: It was encouraged by a series of government measures and international market processes. The government promoted upland cash crops for the international market (Lohmann, 1991; Prayong & Bantorn, 1991); the military settled villagers into border and forest areas to secure these areas against insurgents (Lohmann, 1991); and Ministry of Interior officials followed settlers into the reserve forests, organized them into villages, registered the population, and collected land taxes on cultivated land. Through this latter activity, Ministry of Interior officials (marginalized from the demarcation process) in effect condoned forest settlement, and other agencies soon followed, establishing police stations, schools, health stations, and so on.

A final government policy facilitating accelerated settlement was the decision during the 1960s to extend long-term timber harvesting concessions throughout the country as a way of increasing economic growth rates. These concessions were awarded to provincial companies established for that purpose. By the 1980s most reserve forest territory had at some time been covered by logging concessions. The concessions specified tight regulations consistent with the Brandis system (Prayong & Bantorn, 1991), but in practice, the Forestry Department did not have the capacity to manage and monitor this system. Locally powerful logging companies and illegal loggers cut unmarked trees and trees outside of permitted areas, often colluding with local forestry officials. The political instability that followed the 1973 student-led ouster of the authoritarian government made violation of the regulations easier, because the government became more concerned with alternately accommodating and repressing a mobilized rural population than with protecting the forest.

Loggers facilitated the occupation and cultivation of reserve forest land by building roads and doing most of the difficult clearing (Prayong & Bantorn, 1991). Studies carried out in the 1980s, summarized by Tongroj (1990), indicated that 47% of farmers on reserve forest land had entered the forest "within the past ten years" and 47% claimed ownership by purchase of land cleared by "illegal" logging. The importance of the logging concessions is also indicated by satellite images and aerial photographs showing cultivation going up to but not beyond the borders of national parks and wildlife sanctuaries, where logging concessions were not given and which were better protected than the reserve forest areas (Mehl, n.d.).

To summarize the outcome of this period of forest policy: By the early 1980s, the Forestry Department claimed control of almost half the Thai national territory. However, their lack of administrative and enforcement capacity, and the precedence given by the government to the goals of other government agencies in the context of political instability and rapid economic growth priorities, meant that the Forestry Department was not

able to implement and enforce forest controls. The very process of forest demarcation was partly responsible for the forest's demise, because demarcation was quickly followed by logging concessions, and because many cultivators looking for new land to clear believed that "state" land was public, open-access land, unlike land not claimed by the state, which they assumed had other prior claimants (Chusak, 1994). The next phase in territorialization thus had to come to terms with forest occupation and utilization.

Stage 3: Functional Territorialization

With respect to forest policy, "functional territorialization" involves remapping the forest and other lands according to scientific criteria, which then become the basis for laws prohibiting and prescribing specific activities. In Thailand, this strategy was pursued as a way of dealing with the failures of forest demarcation, and because technocratically minded people promoted it as a method to achieve the best possible use of the national land base (see, for example, Tongroj, 1990). Whereas forest demarcation drew on forest administration in the British colonies, functional territorialization was based on models developed largely in the United States, especially those of the national park, and land use classification (Dupuis, 1995).

Legislation in the early 1960s providing for the demarcation of wildlife sanctuaries and national parks established the legal and institutional basis of functional territorialization. Detailed land classification was also initiated in the early 1960s with the establishment of a land classification committee and the subsequent creation of the Land Development Department in 1963. The government set ambitious goals for mapping soil types throughout Thailand, although classification proceeded slowly during the 1960s (Chalermrath, 1971). Finally, a watershed conservation section was established in the Forestry Department alongside the wildlife sanctuary and national parks sections. These were upgraded during the 1970s to divisional status (Pragtong & Thomas, 1990).

Although functional territorialization was initiated during the 1960s, until the mid-1970s most Forestry Department efforts remained directed toward demarcating reserve forests and administering logging. By 1967 only 1% of national territory was demarcated as national park or wildlife sanctuary (Pragtong & Thomas, 1990), and only one wildlife sanctuary was declared before 1972 (Santisuk et al., 1985). Beginning in the 1970s, however, as concern about environmental degradation mounted, the rate at which wildlife preserves and national parks were declared increased. By 1980 the area in these two categories comprised 6% of national territory, by 1985 this had increased to 9% (Pragtong & Thomas, 1990), and by 1991, to 11%. Further demarcation has been proceeding rapidly since.

During the 1980s, the government began to react to forest occupation by reclassifying reserve forest into zones according to the kinds of activity permitted and property rights recognized by the government. The 1982 Policy on Land Use and Land Rights provided for surveys to determine the extent of "encroachment" and the classification of the "encroached" area in gazetted forests according to suitability for agriculture. By the mid-1980s, the Department of Land Development had finished mapping the country into land capability categories.¹³ The land was also classified according to a watershed classification system, which was based on criteria such as slope, state of forest cover, and occupation status (Nippon, n.d.).

These various classifications were used to implement the 1985 National Forest Policy directive to reclassify the forest reserves into 15% conservation forest and 25% economic forest. The former areas included sensitive watershed areas, wildlife sanctuaries,

and national parks, to which access was strictly regulated. The government was prepared to allow agriculture outside of conservation areas in occupied land classified as suitable for agriculture, but the Forestry Department has been reluctant to give up jurisdiction over demarcated reserve forest (Chusak, 1994). Instead of degazetting this land and issuing title deeds under the Land Code of 1954, the government permitted the Forestry Department to issue a so-called "STK" certificate, which gave limited cultivation rights for 5 years (renewable) for a maximum of 15 rai (2.4 ha) of land.

By 1990 more than 700,000 households had obtained these certificates (Apichat, 1992). The land rights are not transferable except by inheritance, and their renewal after 5 years is contingent on a series of conditions, such as not leaving the land idle continuously for 2 years, and in some cases planting trees (Apichat, 1992; Tongroj, 1990). These qualifications make swidden cultivators ineligible for these rights, whereas continuous cultivation of cash crops is recognized—although continuous cultivation of cash crops is often less sustainable than swidden agriculture. At the same time, the ban on transferability makes it difficult for cash crop cultivators to obtain the institutional credit they need, forcing them to go to local money lenders who charge very high interest.

The Forestry Department has also promoted the "reforestation" of forests classified as degraded but unoccupied by inviting private capital to replant these zones into plantations of profitable trees, mostly eucalyptus. This is understood by many observers as a way for the Forestry Department to maintain jurisdiction over land allocated to these plantations. Most land in Thailand is in fact claimed and used by someone. Many eucalyptus plantations have been fiercely resisted by local people, and to avoid conflicts plantation companies have often paid local users for the use of the land even though the government had classified the land as unoccupied.

A later reformulation which is now the basis for the new Forestry Sector Plan is to combine all national parks, wildlife sanctuaries, and class I (erosion-prone) watershed areas with the remaining "natural" forests to form a "protected areas system" (PAS), which will be strictly protected. Plans have optimistically called for the PAS to cover 88 million rai, or 28% of national territory. As with the reserve forest approach, however, much of the territory demarcated as PAS is already occupied and cultivated.

Over time, the government has increasingly emphasized the new PAS strategy and pulled back from the reserve forest policy. This shift implicitly recognizes the irrelevance of reserve forest laws in the face of widespread agriculture in reserve forest areas. Beginning in 1993, the Forestry Department was directed to accelerate a program (called the Sor Por Kor) under which the department was slowly degazetting reserve forest for allocation through the Agriculture Land Reform Office (ALRO), which is charged with surveying the land and issuing land documents. By November 1994, the government had issued Sor Por Kor land rights for 21 million rai and planned to allocate a further 16 million rai ("Land Reform Policy," 1994). The program has proceeded amidst considerable controversy over corruption in the issuance of land documents.

In conjunction with the degazetting of a substantial portion of the reserve forest, the Forestry Department has stepped up surveillance of parks and other areas classified as inappropriate for agriculture and has set up programs for moving people out of these areas, with the assistance of the military and police. Repeated flooding in Bangkok during the 1980s and a major flood in the south in 1989 reinforced the sense of urgency about forest and watershed conservation.¹⁴ In response, the government imposed a ban on logging and began to take an increasingly militarized approach to watershed conservation. The involvement of the military can probably be traced to the military's need for legitimation with the decline of the insurgency and after intense urban opposition to a military coup

and the military government of 1991 and 1992. The so-called Kor Jor Kor project was an important though short-lived example of an attempt to implement functional territorialization through "coerced conservation" (Peluso, 1993). After one of the leaders of the February 1991 military coup took charge of the Ministry of Interior (Apichat, 1992), a military program to relocate people out of areas classified as conservation forest in the Northeast of Thailand was greatly expanded. Troops were used to cajole, bribe, and eventually forcibly move people to resettlement areas; to clear the land targeted for resettlement areas of existing cultivators; and to plan orderly new villages (Apichat, 1992). The project was opposed by villagers as well as nongovernmental organizations (NGOs) and intellectuals, and the result was chaos, open resistance, and very slow implementation. Fortunately, it was canceled by a new civilian government shortly after the May 1992 demonstrations and killings that forced the military out of power. However, reports from rural Thailand indicate that the military and police remain involved in removing people from newly demarcated protected areas (Ananya & Nipon, 1991; Eudey, 1989; "Hill Folk Destroying Forests," 1993; "Nowhere to Run," 1994; "Policeman Shot," 1994; "Tribesmen," 1993).

To summarize the results of functional territorialization: The Forestry Department has now become a key agency for proscribing or prescribing specific activities within demarcated territories. Land is being mapped into more and more detailed zones based on physical and social classifications, and these zones are the basis on which the Forestry Department determines what kinds of activities are permitted and not permitted. As with previous policies, however, this approach has run into problems because of its contradictions with existing practices of cultivators and resource users in rural Thailand. Although the new civilian government has indicated that it intends to avoid the use of force, the military, the paramilitary border patrol police, and the provincial police have continued to augment the enforcement capacity of the Forestry Department and involve themselves in the protection of forests. The overall result is a period of intensified conflict over land and resource rights in Thailand.

Discussion and Implications for Decentralization

Throughout the 20th century, the Thai government has tried to take over the administration of resource and land rights throughout Thailand. These policies follow from a more general shift in Southeast Asia from states based on control over people and products during the precolonial period, to contemporary territorial states. In this article I have focused on how the government has employed increasingly intricate territorial strategies to claim resources and control human activities in that part of the national territory defined as forest. As in other areas of legal practice, the Thai government borrowed forest laws from European, colonial, and American systems and applied them throughout Thailand. But a lack of state capacity to enforce and administer state laws, local noncompliance, and interbureaucratic competition has rendered these laws unenforceable.

From the perspective of the Forestry Department, the forest is now legally defined by its location on maps, regardless of actual vegetation. Whether the government will recognize local resource rights in the forest depends on maps, which show slopes, watershed sensitivity, wildlife sanctuaries, national parks, and so on, all mapped into homogeneous management zones. These maps have been made possible by sophisticated modern information technologies. This theoretically simplifies the communication of permissible property rights among state agencies, because officials need only consult a map to find out what is permissible and what is not.

These land use policies have been formulated with little local participation and with no explicit recognition of local institutions for managing resources. The lack of formal recognition of customary institutions in Thailand is ironic, because Thailand has never been directly colonized. In contrast, colonial governments in Malaysia and Indonesia instituted plural legal systems with limited recognition of what were defined as "customary practices," and forest law in British India and Burma at least had provisions for creating village or community forests. When this article was written, enabling legislation for community forest management in Thailand had not yet been passed, although such legislation had been debated for several years (Weera, 1993; Yos, 1993).

One of the lessons that can be learned from the above history is that the marginalization of local resource users as well as other interested agencies such as the Ministry of Interior from land use planning and forest management has repeatedly undermined the ability of the Forestry Department to carry out its policies. Most exceptions occurred where the government was able to mobilize sufficient coercive force. In Thailand, as elsewhere, this has led to a militarization of conservation policy, a tendency that some international environmental groups have implicitly condoned in their concern for the preservation of nature (Peluso, 1993).

With the logging ban, forest management is no longer organized around maximizing extraction and revenue, leaving more space for an innovative approach to conservation.¹⁵ There are groups in the Forestry Department interested in more participatory approaches (Pragtong & Thomas, 1990; Weera, 1993) and, under pressure from this constituency, local users, NGOs, and some foreign agencies, the Forestry Department has been experimenting with participation. The recent draft plan for forestry in Thailand rejects forcible eviction and recommends turning small parts of the forest over to local communities.

The classification of land and land use activities by experts using scientific criteria is incompatible with participatory approaches which would recognize and allow for complex on-the-ground arrangements among users. First, as many observers have pointed out,¹⁶ the attempt to divide all land into that owned by the state (under classifications such as reserved forest) and so-called private property has never been effectively implemented and hinders the formulation of innovative solutions to the current administrative nightmare in Thailand. On the one hand, many cultivators in areas zoned as private property do not have private property rights, partly because of restrictions placed on these rights by the many agencies who can issue land documents, and partly because of property claims by a network of kin or other local people. On the other hand, cultivators have been able to force the government to recognize limited resource rights on land classified as forest, and among themselves people recognize rights to use forest land and its products. Yet many administrators believe that the solution to the current mess is to draw the territorial boundaries between private and state land more clearly (e.g., Tongroj, 1990). This may be true in some cases, but more generally I would argue that innovative solutions require that the state recognize property rights that accrue to local user groups as well as to individuals (or households).

More important, the sophisticated procedures by which technical criteria are mapped into homogeneous areas on maps cannot adequately represent the diversity of property and cultivation practices in forest areas. For example, among upland peoples, different groups employ very different swiddening techniques, with different environmental implications. Recent settlers treat resources differently from long-term inhabitants, and recent settlers adopt different practices depending on whether they all come from the same village, what kind of cultivation they practiced before they moved, whether they combine upland crops with wet rice, and so on. There are great differences in the kind of commu-

nity institutions that people can draw on in different parts of Thailand. Thus in some places there may well be a basis for management by local users, for example, where there were local small-scale irrigation groups. But in other places the community may well be fragile, consisting mostly of groups set up by the state or of control by local strongmen who use the threat of violence to get their way. In general we can probably assume that this is more likely to be true in recently settled areas. In all these cases complex and locally specific uses of land, forests, and other resources cannot easily be reorganized spatially into homogeneous land use zones.

This local diversity points to the need in Thailand for more knowledge—not of soil types, slopes, watershed sensitivity, and so on, but of how local property rights are distributed, communicated, and enforced.¹⁷ But the major government agencies, universities, think tanks, and foreign experts remain focused on territorial classification using scientific data gathered by increasingly remote technologies. These classifications continue to be the basis of management policies and programs administered from government offices and universities. For example, the current land reform project is based largely on land use classification—in areas mapped as part of the PAS the Forestry Department will not degazette and turn land over to the ALRO. Although some forestry officials are willing to consider community resource management, and a few have accommodated a more participatory approach (Tan-Kim-Yong & Fox, 1993), most want to retain the right to regulate such management according to technocratic criteria (Weera, 1993; Yos, 1993).

Even if the Thai government were to adopt a program to decentralize forest management to local communities, it is likely to encounter implementation problems due to a continued lack of capacity, the diversity of communities in Thailand, and the Forestry Department's continued commitment to rational land use control through functional territorialization. It remains to be seen if the Forestry Department can reverse a century-long trend to increasing territorial control and begin to allow local people more participation in the spatial organization of resource use and resource tenure.

Notes

1. This definition is based on Sack (1986) and Soja (1971).
2. Initially, the Forestry Department leases were based on a 12-year cutting cycle, but this was increased to 30 years in 1909.
3. See Government of Thailand (1939), *Prachum Kotmai Prachamsok* (Laws and Statutes), which contains additions to the reserved species lists and use regulations.
4. Feeny does not indicate that the rate of deforestation increased over time, but his data combined with his rather high estimate of remaining forest in the 1970s support my conclusion: about 0.4% of national territory per year during 1910 to 1960, and more than 1% per year thereafter.
5. According to Chalermrath (1971), the Forestry Department reintroduced the same legislation as that proposed in 1916.
6. My sources for the India and Burma Acts are Government of India (1881) and Government of Gujarat, India (n.d.).
7. Printed in Volume 52, pages 148–153 of *Prachum Kotmai Prachamsok* (Government of Thailand, 1939). Regulations for implementing this act are in the same volume, pages 539–554.
8. The kamnan, head of groups of about 10 villages, is included in this designation.
9. The Burma Forest Act and the India Forest Act of 1927 contained no provisions requiring local leaders to sign off on the settlement, nor for meetings of concerned people.
10. The three-person committee in Thailand seems to have been based on the 1878 India Act in which the provincial government convened three-member settlement committees, only one member of which was a forestry official.

11. Annual reports also show small areas removed from protected and reserve forest. My interviews in Southern Thailand indicate that at least some of this was done in consultation with local cultivators, in order to remove cultivated areas from the protected and reserved forests.
12. According to Anan Ganjanapan (interview, January 5, 1993) land use checks in Northern Thailand were carried out by hired villagers who often reported the presence only of nearby settlements in order to be able to collect their pay. My interviews with villagers indicate that on-the-ground checks in the south were also cursory.
13. Categories (by declining suitability for agriculture) include various classes of paddy land, upland cropping land, steep and mountainous land, beach and saline soil areas, and water bodies (Nippon, n.d.).
14. Although the flooding was officially and popularly blamed on deforestation in the north of Thailand, to my knowledge the only systematic study of streamflow patterns in the north suggests that these have not changed substantially since the late 1950s, although there was a temporary rise during the 1970s probably due to increased precipitation. See Alford (1992).
15. This was pointed out to me by David Thomas.
16. Charles Mehl and Chusak Wittayapak, among others, have argued this in personal communications with the author.
17. Hirsch (1990) provides an excellent example of just this kind of study.

References

- Alford, D. 1992. Streamflow and sediment transport from mountain watersheds of the Chao Phraya Basin, Northern Thailand. *Mountain Research and Development* 12(3):257–268.
- Ananya U., and P. Nipon. 1991. The process of land settlement in the central region. In *Study of conservation forest area: Demarcation protection and occupancy in Thailand, Vol. 3 (Occupancy study)*, ed. C. Pinthong, pp. 17–57. Bangkok: Local Development Institute (in Thai).
- Apichat, P. 1992. *A study of impact and proposed solutions for the Settlement of the Deteriorated Forest for the Poorest in the North-East (SDF-PIN) project*. Research report, Faculty of Economics, Thammasat University, Bangkok, Thailand.
- Banijbatana, D. 1962. *The management of forests in Thailand*. Bangkok: Royal Forest Department.
- Bryant, R. L. 1993. *Contesting the resource: The politics of forest management in colonial Burma*. Unpublished Ph.D. thesis, University of London, School of Oriental and African Studies.
- Bunnag, T. 1977. *The provincial administration of Siam 1892–1915*. Kuala Lumpur: Oxford University Press.
- Chalermrath, K. 1971. *Thailand's public law and policy for conservation and protection of land: With special attention to forests and natural areas*. Unpublished Ph.D. thesis, Indiana University, Bloomington, IN.
- Chusak, W. 1994. *Local institutions in common property resource*. Ph.D. thesis, University of Victoria, Victoria, Canada.
- Dickson, A. J. C. 1908. The teak industry. In *Twentieth century impressions of Siam*, eds. A. Wright and O. T. Breakspear, pp. 170–181. London: Lloyd's.
- Dupuis, M. 1995 (in press). From morality to nature: The birth of a state rhetoric of ecology. In *Creating the countryside*, eds. M. Dupuis and P. Vandergeest. Philadelphia: Temple University Press.
- Eudey, A. 1989. 14 April 1986: Eviction orders to the Hmong of Huai Yew Yee Village, Huai Kha Khaeng Wildlife Sanctuary, Thailand. In *Hilltribes today*, eds. J. McKinnon and B. Vienne, pp. 249–258. Bangkok: White Lotus-Orstom.
- Feeny, D. 1988. Agricultural expansion and forest depletion in Thailand, 1900–1975. In *World deforestation in the twentieth century*, eds. J. F. Richards and R. P. Tucker, pp. 112–143. Durham, NC: Duke University Press.
- Government of Gujarat, India. n.d. The Indian Forest Act, 1927. In *The Gujarat forest manual*, Vol. II, pp. i–48. Gujarat: Office of the Chief Conservator of Forests.

- Government of India. 1881. Act No. XIX of 1881. (The Burma Forest Act of 1881). In *The Burma forest manual*. Rangoon: Office of Superintendent. (Government printing, 1905)
- Government of Thailand. 1939. *Prachum Kotmai Prachamsok* (Laws and statutes). Bangkok: Royal Forest Department (in Thai).
- Government of Thailand. 1941. *Forest Act B. E. 2484*. Bangkok: International Translations.
- Government of Thailand, Krom Paamai. 1958. *Prawat lae ponngaan kong Krom Paamai* (History and work of the Forestry Department). Bangkok: Royal Forestry Department (in Thai).
- Government of Thailand. 1957. *Royal Forestry Department annual report*. Bangkok: Royal Forestry Department (in Thai).
- Haeuber, R. 1993. Indian forest policy in two eras: Continuity or change? *Environmental History Review* 17(1):49–76.
- Hafner, J. A. 1990. Forces and issues affecting forest use in northeast Thailand 1900–1985. In *Keepers of the forest: Land management alternatives in Southeast Asia*, ed. M. Poffenberger, pp. 69–94. Manila: Ateneo de Manila University Press.
- Hill folk destroying forests. 1993. *Bangkok Post* August 8.
- Hirsch, P. 1990. *Development dilemmas in rural Thailand*. Singapore: Oxford University Press.
- Hirsch, P. 1993. *Political economy of environment in Thailand*. Manila: Journal of Contemporary Asia Publishers.
- Land reform policy under fire for exploiting environment. 1994. *The Nation* November 13.
- Lohmann, L. 1991. Peasants, plantations and pulp: The politics of eucalyptus in Thailand. *Bulletin of Concerned Asian Scholars* 23(4):3–18.
- Lysa, H. 1984. *Thailand in the nineteenth century: Evolution of the economy and society*. Singapore: Institute of Southeast Asian Studies.
- Mehl, C. n.d. *Study on the role of land in Thai society*. Bangkok: Chulalongkorn University Social Research Institute.
- Mekvichai, B. 1988. *The teak industry in North Thailand*. Ph.D. thesis, Cornell University, Ithaca, NY.
- Nippon, T. n.d. *Thai forestry sector master plan, subsector: Watershed management*. Bangkok: Kasetsart University.
- Nowhere to run. 1994. *The Bangkok Post*, July 24.
- Peluso, N. L. 1993. Coercing conservation: The politics of state resource control. *Global Environmental Change*.
- Policeman shot in bid to evict encroachers. 1994. *Bangkok Weekly Post*, March 11.
- Pratong, K., and D. E. Thomas. 1990. Evolving management systems in Thailand. In *Keepers of the forest: Land management alternatives in Southeast Asia*, ed. M. Poffenberger, pp. 167–186. Manila: Ateneo de Manila University Press.
- Prayong, N., and O. Bantorn. 1991. The history of forest land occupation for cultivation in north-eastern Thailand. In *Study of conservation forest area: Demarcation, protection and occupancy in Thailand, Vol. 3 (occupancy study)*, ed. C. Pinthong, pp. 73–111. Bangkok: Local Development Institute (in Thai).
- Riggs, F. W. 1966. *Thailand: The modernization of a bureaucratic polity*. Honolulu, HI: East-West Center Press.
- Sack, R. D. 1986. *Human territoriality: Its theory and history*. Cambridge: Cambridge University Press.
- Santisuk, T., T. Samitinantn, and W. Y. Brockelman. 1985. *Nature conservation in Thailand in relation to social and economic development*. Bangkok: The Siam Society (in Thai).
- Shalardchai, R. 1989. Forests and deforestation in Thailand. In *Culture and environment in Thailand*, pp. 23–50. Bangkok: The Siam Society.
- Siam. 1929. Author unknown.
- Soja, E. W. 1971. *The political organization of space*. Resource paper no. 8. Washington DC: Association of American Geographers.
- Thirawat, S. 1955. *Brief information on forestry information in Thailand*. Bulletin no. R. 17. Bangkok: Royal Forestry Department.

- Tan-Kim-Yong, U. 1993. *Participatory land-use planning as a sociological methodology for natural resource management*. *Regional Development Dialogue* 14(11):70–83..
- Thongchai W. 1988. *Siam mapped: A history of the geobody of Siam*. Ph.D. thesis, University of Sydney.
- Tongfoj, O., ed. 1990. *A land policy study*. Bangkok: Thailand Development Research Institute.
- Tribesmen told not to trespass on forests. 1993. *Bangkok Post*, September 15.
- Weera, A. 1993. Drafting a new Community Forest Act in Thailand. In *Legal frameworks for forest management in Asia*, ed. J. Fox, pp. 97–104. Honolulu, HI: East-West Center Press (Occasional paper no. 16).
- Yos, S. 1993. community forest legislation in Thailand: An NGO perspective. In *Legal frameworks for forest management in Asia*, ed. J. Fox, pp. 105–114. Honolulu, HI: East-West Center Press (Occasional paper no. 16).

A. Small Farmers

✓ **The Northern Thai Land Tenure System: Local Customs versus National Laws**

Anan Ganjanapan

Although the Thai government's 1986 Land Titling Project was designed to enhance security of tenure, promote efficient use of farmland, and increase agricultural productivity in Thailand, a study of villages in Chiang Mai province suggests that the project—in conjunction with population growth, rising land prices, and increases in commercial crop production—may have stimulated conflicts among villagers, encouraged rural indebtedness, increased small farmers' risk of losing their lands, and exacerbated economic differences between rich and poor. In order for the Thai government to realize the expected benefits of land titling, it should also prevent the accumulation of large estates by limiting the size of landholdings and should provide security for small farmers by guaranteeing prices for agricultural commodities.

In 1986 the Thai government launched an ambitious land development program to accelerate the issuing of title deeds to agricultural land. The objectives of the Land Titling Project are to enhance the security of agricultural landholding and to promote more efficient use of farmland to increase productivity. But the program may be both positive and negative in impact, because the issuance of land titles touches on all aspects of the people's lives in rural society. Traditional village life is based on communal structures and kinship systems, while land titles stress individual rights, which are tied to legal protection and the market economy. The new system may create conflicts among relatives and among different economic groups, social injustice, and the failure to keep small farms economically viable.

To understand the impact of development, particularly the Land Titling Project, we will look at changes in land inheritance and the security of landholding that underlie relationships within rural communities and between rural communities and the government, with a focus on villages in Chom Thong District, Chiang Mai Province, which I studied in August and November 1988.

Characteristics of Landholding and Agricultural Production System

In northern Thailand villagers divide their landholdings into four types according to use; *thi ban* (household plot), *thi na* (paddy land), *thi suan* (garden, for growing vegetables and fruit and other trees), and *thi rai* (land for field crops). Farmers often switch land from one use to another in response to market conditions and may improve land without reporting it to the authorities. Consequently, official documents do not always reflect the type and true value of the land.

Besides these types of privately held land, there are public lands: cemeteries, watershed areas, land along watercourses, abandoned temple land, community forests, and so forth. As other available land became scarce, these public lands have been encroached on and included among individual landholdings. Farmers are even issued land documents or title deeds, for these holdings, with resulting conflicts and problems.

The four types of private landholdings are found in most northern villages, with variations according to topography and history. In one village in Tambon Sob Tiew on the banks of the Ping River, there is a limited area for household plots and paddy land. Household plots average less than 1 *rai* (0.4 acres), and paddy land averages only 3 *rai* per household. Garden and field-crop land lies at a distance from the village; most of the village land is used for longan orchards.¹ In contrast, one of the villages in Tambon Yang Khram is on a large flat stretch of land at the foot of the hills. There the farmers have larger-than-average landholdings: household plots of more than 1 *rai* and paddy lands of almost 5 *rai* per household. Field-crop land was formerly reserved forestland, but it is now an Agricultural Land Reform Project area. The villagers received land allotments of 5 *rai* per household, and the owners devote some portion of this to gardens. In general, the landholdings of northern villagers are very small compared to those of farmers elsewhere in the country. The largest paddy holding is not over 30 *rai*, except in a few areas with a special history of paddy land expansion.

Field-crop and garden land can still be expanded a little more into the reserved forests toward the foot of the hills, but paddy land cannot be increased. Around some villages the paddy land has even decreased owing to its conversion into residential land, and households whose heads are younger than 30 years old often have no farmland of their own. Many households in the villages that I studied had no paddy land. Of the 172 households in *muban* (village) 13, nearly 50% (85) possessed no paddy land. This proportion is similar in Tambon Thung Satok, San Pa Tong

¹ The longan is a fruit much like the lychee.

District, which is not far away and which was studied recently by Chamaree Phithakwongse (1987:15). In other nearby villages the proportion of villagers who do not own paddy land is also high and has been for a long time. In fact, many rent their paddy land from absentee owners (Bilmes 1974:25-27).

The number of households not owning paddy land has increased substantially with the immigration of people who hope to receive land distributed in the land reform area. In muban 4, Tambon Yang Khram, 30 families of the Lua ethnic group immigrated from the hills. In a village with only 110 households (after arrival of the immigrants), this meant a major increase in households with no paddy land. Members of the landless households cultivated field crops and became wage earners in the agricultural sector. The number of landless laborers increased substantially, particularly in the longan harvesting season and in the dry season, when it is time to plant dry-season crops. In fact, landlessness has increased in the progressive agricultural area of Tambon Yang Khram, resulting in high competition to rent paddy land and a subsequent increase in rental rates. The rented fields are small, so the average size of landholdings remains small.

New households that separated from households with adequate paddy land may continue to cultivate land with the original household. Otherwise, the new household may rent land from neighbors under various arrangements. More paddy land is rented in Tambon Yang Khram than in Tambon Sob Tiew, where the land is less concentrated and the paddy fields less fertile.

The paddy land in both Tambon Yang Khram and Tambon Sob Tiew is double-cropped. Rice is grown in the rainy season. In Tambon Yang Khram, the farmers grow a native variety of rice that is photosensitive and can be harvested within three months, giving them more time to grow market crops during the dry season, when tobacco and chilies are commonly planted.

Most of the villagers' income comes from longans, and they tend to encroach nearby upland areas to plant the trees. In addition, villagers who own small plots of land where they grow longans have enough time to earn a good income from outside the agricultural sector, especially from wage labor (Chamaree Phithakwongse 1987).

Conflicts over Land Inheritance

Inheritance is the most important means of land transference in the northern village communities. The inheritance of paddy land in particular is related to belief in ancestral spirits called *phi pu ya* (grandparent spirits) and to marriage, but patterns of inheritance have been changing in recent years.

In the past, land, especially paddy land, was kept by a kinship group who believed in the same grandparent spirits, and it was kept within the descent group through matrilineal inheritance (from mother to daughter). A man entered the descent group of his wife's grandparent spirits when he married and moved from his parent's house to the house of his wife's parents. Sons inherited movable property, such as money and cattle, while the daughters inherited land. Females remained in the house of their birth. Kinship groups with the same grandparent spirits controlled the paddy land of their descent group by controlling the selection of marriage partners for the females of their descent group.

Northern villagers believe that land is descent group property and should be inherited by descent group members. Single members cannot inherit land and must live in their parents' households until death. Many families used to keep land in their own kinship groups if possible, so many descent group members, especially females, remained single. This practice was usually found in groups with large holdings (Anan Ganjanapan 1984).

In any case, land belonged completely to the offspring after the parents passed away. While the parents were alive, they divided their land among their married daughters, if they had large enough holdings, for the daughters to work with their husbands. The couple gave a portion of the produce to the parents, either in a fixed payment called a *kha hua* (head value) or in the form of *kan tham na pha* (divided paddy cultivation), which meant giving half the total produce to the parents. Divided paddy cultivation can be seen as a type of gradual inheritance. Such arrangements between parents and married offspring accounted for much of the sharecropping in the north. At present, a married son also receives a share of the paddy land. As the available paddy land of each descent group becomes reduced over the years, the wife's land alone is often insufficient for the couple to live on. Equal division of inherited land among both male and female children has occurred over at least three generations.

Thus, land is now shared equally among male and female children. At the same time, the portion of the land that remains with the parents is not always inherited by the daughter (usually the youngest) who stays at home to care for them. Each child may help look after the parents, in which case, especially among poor households, the parents' portion is sold to cover the funeral expenses. The opportunity to buy this last piece of land is offered first to the children. If any of them can pay the funeral expenses, he or she inherits the land. Instead of the married children all contributing to the funeral expenses, as was common before, parents must keep a portion of land to cover the cost.

This trend reflects a major recent change in the family cycle. Children with families often separate from their parents' households sooner than before, because they have a chance to buy their own land or become wage earners. They do not then have to remain dependent on their parents. In some cases, none of the children remains at home to look after elderly parents. Some older couples adopt a nephew or niece to look after them in their old age. According to tradition, this relative would have the right to the couple's remaining portion of land, just like any other child who cared for them until they died. But these days the situation is likely to cause inheritance problems, because adopted offspring are generally not legally registered.

In families without enough land to divide among the married children, the parents give the rights to the undivided land to all their children's families, who then help with paddy cultivation and store the harvested rice together. They share the harvest according to need. The situation is different, however, if the land can be used in the dry season—that is, if it can produce two crops a year. The parents then let their children use the land in the dry season without sharing the produce or any income from the dry-season crops with the parents. When the parents die, the land is shared equally among the children.

Some families have such small holdings of paddy land that partition would leave the children with parcels too small to cover production costs. Consequently, a custom known as *sui* has emerged: buying and selling among brothers and sisters. Under *sui*, a brother or a sister has the preemptive right to buy the undivided inherited land. The buyer can pay the siblings in installments. In addition, the selling price may be a bit lower than if the land were sold to outsiders—certainly, no more than the market price. *Sui* helps keep rice farms large enough for efficient production.

Sometimes, too, in families with large landholdings, the parents distribute a part of the land before they die in order to prevent conflicts over inheritance. In other cases, the parents may be heavily in debt, and so sell their land to their children, who thus obtain immediate rights to the land. The children are sometimes willing to pay more than the market price for the land, which not only helps the parents but also keeps the land in the family.

Husbands and wives inherit separately, and their ownership of their respective portions is recognized by local custom. Traditionally, married couples did not register their marriages with the government. Each partner was thus able to maintain full control over his or her portion of the land. If the marriage is registered, the land is considered matrimonial property, with the husband legally controlling the joint property. If the marriage is not registered, both partners can own and control their property sep-

arately. A woman whose husband has other wives can then make sure that her own children inherit the land. A man's land is treated in a similar way (Potter 1976:130).

Principles of Inheritance

At present there are several unwritten principles of land inheritance, which represent changes or improvisations to the general tradition.

1. The owner of the property has the right to give it to anyone he or she wishes.
2. The children who look after their parents in their old age receive a special share of the land after the parents' deaths.
3. Each child has the right to receive an equal share of the inheritance, which includes any inheritance that the children may receive from others in the parents' descent groups.
4. Husband and wives retain the right to restrict the inheritance of their own property to the children born to them.
5. The property owner normally transfers full property rights to his or her heir(s) only after death, but he or she may give usufruct rights before death.
6. Married sons who have already received property other than land are expected to relinquish claims to the land to their sisters.
7. The property that a married couple obtains while living together is passed on to the children born from that marriage.
8. Some sons and daughters are given the right to buy portions of family land from their parents in installments.

The last three principles were formulated to prevent farms from becoming too small, which can occur when equal shares of small parcels are given to each child. Principles 1 and 2 have been accepted by law, but some of the other principles have not yet been. Most villagers are likely to accept principles 3, 5, and 2, in that order, and to follow the other principles in practice.

Basically, the children accept that they share an inheritance. If a disproportionate share goes to one heir, the others object. In practice, to avoid conflicts over the land, the distribution of the inheritance is determined while the parents are alive and involves consultations with all the offspring. Older relatives and village headmen are sometimes invited to be witnesses. Generally the allocations are made orally. Only a few parents prepare wills. The majority of those who make wills are very rich, holding large pieces of land and having children born from several marriages. Villagers also record intended land distribution by changing the names in the land documents (see also Turton 1975:307-8). In a village in Chiang Rai the villagers also believed that children would be condemned by their parents if they fought over land

and did not follow the agreement. As a consequence, there were few conflicts over land inheritance (Turton 1975).

The eight principles often conflict with one another in practice. Paul Cohen (1981:175) describes a conflict in San Pa Tong District that arose from differing opinions about principle 6. When one man married, he accepted his inheritance in cash and cattle instead of land and moved to another district. In doing so, he gave up his claim to land to his younger sister, who remained at home. Problems arose when his children did not accept the agreement and sued for what they claimed was their land. The affair ended in murder.

Disputes and impasses over inherited land arise from two types of conflicts:

1. Conflicts between traditional practices and principles, where only the principles most useful to the conflicting parties are selected
2. Conflicts between legal principles and traditional principles or practices

Disputes over inherited land have increased among relatives since the government asked villagers to turn their land documents into title deeds. Previously villagers had little interest in formally transferring land rights to the correct owners. Disputes arise, however, when the villagers want to use their land documents as collateral or for other business, for the law does not accept many of the traditional arrangements. The conflict between traditional principles and the legal principles has become in some cases an obstacle to the issuance of land titles. When the names of deceased people remain on land documents for several generations, there are likely to be many descendants, all considered to be legal heirs. Each heir must sign the document to give legal ownership to those who obtained the land by traditional principles. Some heirs see doing so as a burden, or they feel that it is not to their advantage, so they refuse to sign their names. Consequently, the issuance of titles to household land, implemented in several of the study villages, was delayed, and title deeds could not be issued to persons who received rights to the land under customary practices.

Security and Conflicts in Landholdings

Type of land tenancy is related to land use. The extent to which the type of landholding creates efficiency in production depends on secure tenure of the land. Various societies have tried to develop laws and regulations to support the forms of security in landholding that are appropriate to the level of societal development. If economic conditions change faster than the supporting system of land tenure, efficiency of land use is directly

affected, as are relationships among different groups or classes, which in turn affect the development of the society as a whole.

Older villagers explain that they used to believe that landholdings were secure under the system of traditional practices, which emphasized the usufruct rights of kinship groups, rather than individual owners. On the basis of common acceptance by the community, the community would assure the rights of the kinship group as long as the group continued to cultivate the land and pass it on to kinship group members for continued cultivation. Such rights reverted to the community whenever the kinship group abandoned the land. Other community members would then be given the right to use the land for cultivation.

Setting clear boundaries to landholdings was among the measures to assure secure holdings. The kinship group using the land simply indicated that the land was being cultivated. After cutting down the forest, the group had to grow crops to rightfully occupy the land. Dikes had to be made for paddy land; they were built and required annually. If the boundary dike from the previous year was not damaged, the family in the neighboring field might not join in repairing it, because the main principle in assisting others was the mutual benefit gained from the work.

For the most part, the villagers did not use boundary poles, because they did not believe there was any cheating about the boundaries. Until recently, a few big wooden boundary poles were used in the few areas where people felt that markers were needed. In the past, the villagers simply relied on accusations to prevent cheating by, for example, moving the paddy dikes a bit each year. Such changes had not created problems of land security, because most villagers still engaged in subsistence farming rather than commercial production and relied on consensus among themselves to resolve disputes. They exchanged labor in paddy cultivation and tried to avoid conflicts that would threaten their livelihood.

Land demarcation often depended on natural features as well, such as streams, rivers, and irrigation ditches. Although these features often changed, land security was not seriously affected. There was always more land to be cleared. What was most important was that the community guaranteed use of the land. The boundaries were flexible, based on mutual agreement, which was founded on practical principles in harmony with the natural changes of the land.

Nor were there fences to mark the boundaries of household plots, because the area around the house was a common living area for groups of relatives in several houses. Tree planting and vegetable growing in home gardens were done jointly by households in the group. As much land as each happened to use was considered the home plot of that household. Later, some villagers began to use trees to indicate boundaries. Fencing off house-

hold plots is recent, begun when the area for house construction became limited.

✓ The increase in commercial crop production that started about 30 years ago has led to an increase in land boundary disputes. Now wooden poles are used to mark boundaries, but there are still disputes—even murder in one case in which a relative moved a boundary pole.

No land documents were ever issued in Chom Thong District until the Land Act was officially proclaimed in 1954. It specified that if landowners did not report their holdings to land officers within 180 days, the government would assume that no one occupied the land. People who reported their holdings received a temporary document, generally known as the S.K. 1. After the Land Act of 1954 was amended in 1967, the villagers could no longer use the S.K. 1s officially, for they no longer gave any rights to the landholders. The majority of villagers who held S.K. 1s changed them into the new certificates of land use, the N.S. 3s, when the land was transferred or when it was bought or sold, and the transaction was recorded according to the law. Otherwise, villagers thought converting the land document was a waste of their time and money. But when land prices started to go up, the villagers who owned large tracts of paddy land generally converted their land documents into N.S. 3s.

In 1978 the government began to issue land documents called N.S. 3Ks, with the land boundaries determined from aerial photographs. These documents were more accurate than the earlier N.S. 3s. In 1986 the land officer in Chom Thong District began to conduct surveys to issue title deeds for household land in the study area. Some villagers asked the officer to conduct surveys to issue titles for other types of land, such as paddy fields or gardens. Since then, almost all the household land documents have been changed into title deeds, except where relatives could not agree on the distribution of inherited land.

In the land registration book of Chom Thong District, paddy lands, other field-crop lands, and gardens are still more likely to be registered with S.K. 1 documents than with any other type of land document, with the exception of paddy land in Tambon Sob Tiew, where more plots are registered with N.S. 3s. Most villagers are satisfied with S.K. 1s and are not interested in converting them into N.S. 3s or N.S. 3Ks. They are, it seems, confident of the security of their land tenure based on traditional principles. The villagers believe that they will lose some control over their land, particularly in distributing their inheritance and in buying and selling the land, if they convert their land documents. They prefer, however, to change their land documents from S.K. 1s to N.S. 3s if their inheritance practices coincide with the law. With so many conflicts between traditional inheritance practices and the law, many villagers prefer to keep their land

with S.K. 1 certificates and then give the land as an inheritance without transferring ownership rights to the names of the heirs. This preference fits with traditional practices.

In Tambon Sob Tiew the proportion of N.S. 3 documents for paddy fields increased to 73%, reflecting the increased legal land transfers with outsiders, which include buying and selling land and using land documents to guarantee loans. It also indicates that more land is bought and sold and that the villagers have turned more toward market crop production, which requires increased credit. At the same time, there seems to be little problem with the distribution of inheritances and few conflicts between tradition and law.

A change in the basis of land security from traditional principles to legal ones not only changes the basic control of the land—from control by the kinship group and the community to control by the law and thus the state—but also changes the principles of landholding from those of usufruct to those of proprietary rights. This change is clearest with the issuance of N.S. 3Ks and title deeds. The S.K. 1s and the N.S. 3s are considered to assure the right to use land. They still give villagers an adequate opportunity to use traditional principles of possession and security with support from local leaders. If they already have these types of documents, they feel moderately secure in their land tenure and have less interest in obtaining other N.S. 3Ks or title deeds. They do understand the differences between the documents, especially in using them as collateral for credit, but are not eager to request the conversion of their land documents to title deeds. Because some villagers think the government is most strongly behind the title deeds, which, indeed, are more useful to the people, they are likely to convert their documents to title deeds if the government provides the necessary facilities and services near their homes.

Although the villagers in the study area generally feel uncertain about converting their documents, the conditions of landholding have changed so much that at times the traditional principles can no longer resolve problems, especially in cases of cheating on land boundaries, which occurs now even among relatives. Land prices have increased dramatically with the production of cash crops as a second crop in the paddy fields, and limited opportunities for expanding cultivation into new land have driven up land prices. Many villagers therefore see the benefits of title deeds in helping to maintain land security and prevent land disputes. The baseline study conducted by the Center for Applied Economic Research, Kasetsart University (1988), shows this to be among the main reasons that people in the northern region want title deeds. The findings were different in the northeast, where villagers felt that title deeds were a better guarantee for credit. Northern villagers saw less benefit in the title deeds for

credit than for security. In addition, villagers in the north believed that title deeds would help raise land prices.

Even though the villagers understand the use of title deeds, several problems were found in the issuance of titles to the villagers. By and large, the villagers think that they will incur high expenses, which would not cover the expected benefits. The title deed does not confer new use rights. This problem may be solved by providing title conversion services near communities, but other problems cannot be so easily resolved. These are problems concerning disputes between tradition and the law, as well as disputes over the difference in benefits to the government and to the villagers.

The first type of dispute mostly relates to inheritance; that is, the villagers are not likely to transfer land rights through inheritance if the distribution of land according to tradition is contrary to that stipulated by law. The legal heirs are not interested in participating in any formalities of land documentation if they do not receive any of the benefits, so the officials are not able to issue the title deeds. Similar cases are likely to arise when land is bought and when there has been an oral agreement but no immediate transfer of land documents, especially when the original owner has died. Sometimes land has not been distributed among the heirs because the disputants on one side followed traditional principles and those on the other followed the law.

The second type of dispute that has made villagers uninterested in converting their land documents to title deeds concerns the land surveys that are necessary before titles are issued. Problems arose when the villagers claimed more land than the government officers recognized or when the government did not recognize the ownership of certain types of land, such as reserved forestland, some types of public land, and land along the rivers or irrigation canals. Conversion would lead to villagers owning less land.

By and large, the villagers are uncertain about the survey methods and principles used. The villagers allow land boundaries to wind and bend naturally, while the officials require straight lines. Differences in the calculation of land area result. In one case the villagers did not accept a survey because the government calculated a greater land area than they themselves had. They did not accept the N.S. 3K because they would have had to pay more taxes, higher wages for paddy land preparation, greater irrigation fees, and so forth. Occasionally, too, in making straight-line surveys, the officials include types of land that the villagers do not want, such as land with an abandoned temple or a stupa, which might be regarded as sacred land.

The villagers in the study areas generally have positive attitudes toward the Land Titling Project because they realize the immediate benefits, including increased security of land tenure,

prevention of disputes, facilitation of credit, and increased land prices. In practice, they hesitate to convert their land documents to title deeds, partially because of conflicts with traditional land-tenure principles and because they themselves would not benefit, but more important is the impact of accelerated land entitlement. The impact was evident in the villages studied, because the government had already issued most of the title deeds for household lots.

First, disputes among relatives have increased; there were so many fights over land that some villagers said they did not want titles if such problems might occur in their families.

Second, with the issuance of land title deeds to economically disadvantaged persons, it became apparent that without other careful means to guarantee land tenure, a title that increases land tenure security in one group in society may have just the opposite effect in other groups. When the government provided security of tenure to landowners by issuing titles guaranteed by law, the existing tenure system based on tradition and supported by the kinship group and the community changed substantially. The change from usufruct rights to individual rights took the security of tenure away from family and community and placed it under the law and in the broader political-economic system, both of which are outside the community and over which the villagers have very little control. The change severely harmed the security of land tenure for the economically and politically disadvantaged groups, especially the small paddy farmers. When the news was spread in the study area that there would be a land-titling program for the villagers, business people from outside the community expressed interest in buying land. Land prices rose, and villagers sold some of their land. Buying and selling land used to occur only within the community, because the sale of land would mean the loss of livelihood for the poor farmers.

Landholding rights that rest in the individual tend to make holdings more sensitive to market forces; when rights were under the control of family and community, the emphasis was on using the land for household production or for housing. When individual rights became prominent, the value of the land increased, and the land became a commodity in itself—a guarantee for credit or an object to buy or sell. The title deed, then, has immediate uses; it can cause an increase in land prices or guarantee a large agricultural loan from a formal institution. In the long run, it may not provide security of tenure as intended.

Title deeds are also used in securing loans for purposes not connected with agricultural production. A title deed can be borrowed by children or other relatives to guarantee bank loans to pay to arrange overseas jobs or buy a car. This use of title deeds can easily lead to forfeiture of the land if the loans cannot be repaid. It certainly does not directly improve the efficiency of ag-

ricultural production (see Center for Applied Economic Research 1988:ch. 8).

Land titles alone are not sufficient to provide security of land tenure under the present economic system, where a large number of poor farmers are faced with low prices for their agricultural products. To support security in land tenure and to encourage farmers to improve productivity, the government must implement additional policy measures. Otherwise, the land-titling process may accelerate the loss of farmers' land and decrease the security of land tenure. Other measures may help to prevent such negative consequences:

1. Zoning, particularly in agricultural areas, to prevent the purchase of land for nonagricultural purposes.
2. Limitations on the size of landholdings to prevent widespread speculation. This could be enforced with progressive tax measures.
3. More policies to support farmers by reducing production costs and increasing the prices of agricultural products. This would keep farmers from going bankrupt and risking their land tenure security.
4. Expansion of land reform activities to include not only the distribution of land to people living in degraded forests but also to emphasize the allocation of land directly to the farmers who are presently tenants, so they can own the land they farm. Tenancy is extensive in fertile valleys throughout the north.

Conclusion

In Chom Thong District, where title deeds for household plots and for some portions of paddy land have already been issued, a majority of the farmers understand the benefits of title deeds, particularly the increased security in land tenure, the greater access to credit, and the increase in land prices. Yet some farmers still cannot ask for titles without losing traditional rights to hold the land or losing traditional benefits, and some do not want to ask for them because they are afraid of negative consequences. Consequently, the government must face delays in the titling process. The problems have several causes:

1. Contradictions between traditional practices and legal principles in relation to inheritance, demarcation of land boundaries, and buying and selling of land
2. Controversies between the government and the farmers over the survey method, land classification, and fees and other expenses
3. Disputes in families and among relatives caused by different opinions and different individual benefits, depending on whether the land is held under the traditional system or under the formal legal system.

These problems could be resolved by learning more about the traditional systems and rights in each locality and by organizing a committee to resolve conflicts—a committee that includes local leaders.

Farmers in the area have small landholdings and high production costs; they receive low prices for their products and face urban expansion and the expansion of business, industry, and rural tourism. The issuance of title deeds will not provide benefits equally to the farmers—neither security of land tenure nor access to credit. The title deeds support the principle of private land ownership, so landholdings will fall under the management of individuals. The impact on village life is multifold.

1. Because of the title deeds, the price of land increases, and small farmers are at greater risk of losing their land. Increased costs and lower prices for crops force farmers into heavy debt, whereupon they have to sell their good land to speculators from outside the community. The farmers move out to buy less fertile land, resulting in lower efficiency and lower agricultural production.
2. When the price of crops is low, the farmers tend to borrow money for nonagricultural activities or lease their land for rental profit. In such a case, agricultural production is not improved.
3. Land title deeds are used by relatives who are not the real landholders. In the case of small farmers who have insufficient land to share among all their children, family members use the title to borrow to invest in the nonagricultural sector. The farmers are then at risk of going into debt; if they cannot repay the loan, they could lose their paddy lands.

It is clear that land titling does not necessarily guarantee security in land tenure, nor does it necessarily promote greater efficiency of agricultural production. To reach the stated objectives of, and obtain the greatest possible benefits from, the Land Titling Project, the government should consider carrying out other measures at the same time:

1. Areas should be zoned according to type of land use.
2. The size of landholdings should be limited.
3. Farmers should be encouraged to increase production through guaranteed prices of agricultural commodities.
4. Land reform programs should be implemented to ensure that farmers own the land they cultivate.
5. Other types of land documents, not just those that certify private ownership, should be given for some types of land, such as public land and community forests, so communities can use and conserve these resources.

12. Wiebe, K.D. and R. Meinzen-Dick. 1998. **Property Rights as Policy Tools for Sustainable Development.** *Land Use Policy* 15(3):203-215. Reprinted with permission from Elsevier Science.



Pergamon

Land Use Policy, Vol. 15, No. 3, pp. 203-215, 1998
Published by Elsevier Science Ltd
Printed in Great Britain
0264-8377/98 \$19.00 + 0.00

PII: S0264-8377(98)00014-3

Property rights as policy tools for sustainable development

Keith D. Wiebe and Ruth Meinzen-Dick

Introduction

The emergence of land markets in developing countries sometimes concentrates property rights in individual 'owners,' restricting the rights held by other claimants under customary tenure systems. By neglecting livelihood and environmental externalities, this may undermine the objectives of sustainable development. This paper draws lessons from the United States' experience using property rights as policy tools to accommodate multiple interests in resource use and conservation without incurring the political costs of regulation or the full financial costs of land acquisition. The benefits of such tools must be weighed against potentially significant costs, including those of monitoring and enforcing complex property arrangements over time. Published by Elsevier Science Ltd

Key words: Property rights, sustainable livelihoods, environmental policy

Recent years have seen growing interest in the identification and encouragement of economic development strategies that are environmentally and socially sustainable (Serageldin, 1996; Vosti and Reardon, 1997). Along with this interest has grown the recognition that sustainable development, and the efficient and equitable use of resources on which it is based, depends critically on the ways in which property rights are defined and distributed (World Bank, 1997). Yet policies to influence the definition and distribution of property rights have produced decidedly mixed results. In particular, trends toward privatization and land market creation have been associated in many developing countries with a reduction in the number of stakeholders who can lay claim to the use of a given piece of land, with potentially harmful economic and environmental consequences.

There is a temptation to blame such consequences on the emergence of land markets *per se*, when in fact markets only perform as well as the institutional context in which they function. In the case of sustainable development, market performance depends critically on the ways in which the traditional rights of multiple stakeholders are accommodated as rights to property become more formally defined. This paper seeks to inform the discussion of property rights as policy tools for resource use and conservation with an examination of lessons from the United States' recent experience with 'partial interests' in land. Partial interests—the individual sticks in the complex bundle of rights that constitutes land ownership—can be identified and traded separately, providing a means of formally valuing and protecting the diverse interests of multiple stakeholders in a particular parcel of land (Wiebe *et al.*, 1996). Lessons from the United States' experience, carefully considered, are valuable in this context because of the scarcity of well-documented examples of statutory tenure arrangements involving market transactions that accommodate multiple uses and users in developing countries (Meinzen-Dick *et al.*, 1997), and because such lessons have not yet been brought to the attention of the wider audience interested in sustainable development.

Keith D Wiebe is with the USDA Economic Service, Room 4202, 1800 M Street, NW, Washington, DC 20036-5831, U.S.A. Tel.: 202-694-5529; Fax: 202-694-5774. Ruth Meinzen-Dick is with the International Food Policy Research Institute (IFPRI), 2033 K Street, NW, Washington, DC 20006, U.S.A. Tel.: 202-862-5600; Fax: 202-467-4439.

In practice, in the process of formalizing tenure arrangements, the bundle of rights that constitute land ownership are often consolidated—whether deliberately or unintentionally—in the hands of a single ‘owner’, and many of the subtleties which historically allowed other right-holders to access, use, or influence the disposition of land are lost. This process is observed in both explicit privatization policies (such as land titling programmes) and in the undirected evolution of land markets and property rights (for example, under conditions of rising population pressure or market integration). Indeed, the process is sometimes viewed as a necessary and inevitable condition for the development of efficient markets.

The problem with simple (or simplistic) concepts of land ‘ownership’ is that the nominal landowner is not generally the only person affecting or affected by the use of the land. Two types of side effects, or externalities, are especially important. First, other individuals or households may depend on the resource for their *livelihoods*, and may be threatened economically by exclusion from historic patterns of access to resources. For example, pastoralists may depend on the stubble from cultivated fields as a seasonal source of food for their herds, and may have difficulty feeding their animals if denied traditional access to such fields (Williams, 1997). The livelihoods of fisherwomen in coastal areas may be threatened if they are prevented from using traditional beach areas to dry their fish (Kendrick, 1996). The livelihood effects of such exclusion are exemplified as far back as the Enclosure Movement in England, when fields and forests were enclosed and traditional access by local communities was restricted, causing enormous upheaval as many customary claimants were dispossessed (Baland and Platteau, 1996).

The second type of externality is seen when land use imposes *environmental* burdens on neighbours or society at large. Tenure systems that disregard the interests of these other parties give the landowner no incentive to consider the off-site consequences of his or her use of the land. Examples include air pollution downwind or changes in the quantity or quality of surface water, declining fish stocks, or reservoir siltation downstream. These latter types of externalities have received increasing attention in recent years, in both developed and developing countries. The result has often been the imposition of government regulations restricting certain land uses in order to reduce environmental degradation. In fact, sustainable development requires attention to both the environmental and the livelihood aspects of tenure systems because growth, poverty alleviation, and environmental sustainability are intricately interlinked (Vosti and Reardon, 1997).

A closer look at the experience of the United States is revealing because it shows that this stylized process of simplifying tenure arrangements to individual ownership, and then influencing behaviour by imposing regulations, is not necessarily optimal or even necessary. Instead of simplifying and streamlining the rights of various individuals, interest groups, or society at large, it is possible to use more refined and flexible approaches. This requires us to focus on partial interests in land—the individual sticks in the bundle of rights that constitutes land ownership, such as the rights to draw water, graze livestock, produce crops, or build houses. Such rights may, in general, be held and exchanged separately, providing a mechanism for recognizing a range of claimants on a resource even within a system of formalized tenure. By allowing voluntary acquisition and conveyance of specific rights for specific uses, partial interests offer a more refined alternative to establishing or trading full ownership rights as a package.

While they may be equally complex, partial interests in the United States differ from those in many developing countries in various ways, principal among them being that in the United States they are typically more formally codified. This has the important result that in the United States such interests can potentially be traded more easily across a wider pool of market participants than would otherwise be possible. This result becomes important because the acquisition and conveyance of partial interests allows public agencies and private non-profit conservation groups to influence the use of public and private land without incurring the political costs of land regulation or the full financial costs of outright land acquisition.

Section 2 of this paper presents a discussion of property rights and natural resource management, with particular attention to partial interests in land. Section 3 provides an overview of the evolution of land tenure and natural resource policy in the United States, with special reference to policies that rely on partial interests in land to limit environmental externalities such as the loss of farmland to urban uses, the loss of topsoil and wildlife habitat on environmentally sensitive lands, and the loss of wetlands to agricultural use. Section 4 examines the applicability of these concepts in developing countries, where externalities include the potential loss of livelihoods as well as environmental effects. This section also deals with the institutional requirements and costs associated with such an approach to natural resource management, and addresses some of the hurdles that would be faced in extending such an approach in developing countries. Conclusions are summarized in Section 5.

Property rights and resource management

The nature and distribution of property rights are critical in determining how resources are used and conserved. By property rights we mean the formal and informal institutions and arrangements that govern access to land and other resources, as well as the resulting claims that individuals hold on those resources and on the benefits they generate (Bromley, 1997; McElfish, 1994). Property rights determine *who* can do *what* with a particular resource, such as a parcel of land, and sometimes also *when* and *how* they can do it.

Property rights arise from law, custom, and the operation of markets. Public agencies play a central role in shaping property rights. First, public agencies help establish the initial distribution of rights in (or access to) resources within a community or society. Second, they influence the ways in which these rights can be traded between members of society. And third, public agencies may themselves participate in markets for rights in land and other resources.

Because of their role in shaping how income and wealth are generated and distributed, it is not surprising that property rights are the subject of controversy and debate in any but the most static of situations. The United States is no exception, but the United States' experience in this regard is unusual, and perhaps unique, in the extent to which the debate over property rights is depicted in terms of black and white (with respect to the extreme positions that are sometimes taken regarding the nature of property rights). Because of the unique and relatively recent historical experience of United States westward expansion and settlement—during which vast lands were essentially swept clear of their existing inhabitants and thrown open in great abundance to new occupants and owners—some landowners have come to feel that their property is truly their private

domain, over which they have complete sovereignty to do as they wish. In effect, the 'what', 'when', and 'how' dimensions of tenure are overlooked in the conventional focus on 'who' and 'where', resulting in expanded claims for compensation of landowners when government agencies restrict the use of land to accomplish public (and especially environmental) purposes. (For a recent sampling of the vast literature on this so-called 'takings' issue, see Bromley, 1997; Goldstein and Watson, 1997; Segerson, 1997; and Stroup, 1997.)

The sharpness of this supposed delineation of private property in the United States stands in marked contrast to the situation in many developing countries, where complex and dynamic tenure systems may consist of multiple rights by multiple parties to a variety of actions on any single parcel of land. One person might have the right to produce crops on a particular parcel of land in a certain season, for example, but others might have the right to graze livestock there after harvest, and still others may have the right to collect fruit or firewood from trees at other times of the year. These tenure systems are further complicated by overlapping (and sometimes conflicting) statutory and customary rights, many of which are not subject to market transfer, or which may be transferable only under certain restrictive circumstances (Bruce and Migot-Adholla, 1994). Even many older industrialized countries retain complex overlaying systems of rights (e.g. public rights of way across private fields in various European countries).

In fact, upon closer examination, property rights in the United States resolve into partial interests in land that can be fully as intricate and complex as those in developing countries. Partial interests are the building blocks of land tenure systems, including rights to use land and other resources in specified ways. Partial interests in a particular resource, such as a parcel of land, can be held simultaneously by multiple parties, and may be organized in a variety of ways to accommodate a variety of objectives. As interests in particular resources may be held privately, publicly, in common, or by no specified party, so may tenure systems be characterized by a mix of state, private, common property, and open access resources. Such systems are inevitably complex, and indeed many of the most interesting problems of resource use and environmental degradation arise when such systems are incompletely specified, or when the rights to particular resources are not clearly defined.

Such situations defy simple attempts to predict the potential consequences of emerging land markets or other changes in tenure, both in terms of equity and in terms of the efficiency of agricultural production. But such attempts are essential to a better understanding of the implications of changes in land tenure, whether directed or undirected, and whether in a developed country or a developing one. Our intent here is to sharpen the resolution of the conventional black and white delineation of private property in the United States, substituting instead a more realistic picture made up of distinct shades of grey (Section 3), and to consider the policy implications of these shades of grey in the tenure systems of developing countries as well (Section 4).

The evolution of land tenure and natural resource policy in the United States

Between Independence (in 1776) and 1867, the federal government acquired ownership of about 80% of the current area of the United States.

To encourage westward expansion and settlement, most of this land was given away or sold on concessional terms to State governments, railroad companies, and homesteaders by the end of the nineteenth century. These grants were generally conditioned on the land being cleared, drained, plowed, or otherwise made suitable for productive use.

The results have been two-fold. First, about two thirds of United States land is now privately owned. And second, due in part to past federal policies, much of that land has been used in ways that cause environmental problems. For example, the conversion of wetlands and highly erodible lands for agriculture increases the runoff of soil and water into streams and rivers, reducing water quality and increasing the likelihood of flooding downstream. About half of the wetlands that existed at the time of European settlement have since been converted, most of them for agricultural production. Similarly, inappropriate cultivation of marginal lands was one cause of the 'Dust Bowl' of the 1930s.

Recognition of these environmental consequences led to the gradual withdrawal of public incentives for land settlement and conversion over the first half of the twentieth century, followed in the 1970s by the introduction of new laws and regulations protecting wetlands and endangered species' habitat. These laws and regulations in turn provoked a backlash from some landowners, who saw them as an unwarranted intrusion on their private property rights. This backlash reached a peak in Congress in 1995, including a number of proposals to expand financial compensation requirements for any landowner whose property values were diminished by federal actions, including environmental protection policies.

Wary of the political costs of environmental regulations, the federal government has simultaneously pursued a more voluntary approach to influencing land use, by offering landowners and farmers financial incentives for environmental conservation, restoration, and preservation. In many cases, these incentives amount to the acquisition of partial interests in land, essentially representing the voluntary conveyance by the landowner or farmer, to the federal government, of the rights to use land in certain ways. For example, the federal government might rent from a farmer the right to use a certain parcel of land in a way that causes excessive soil erosion. The point is not that the government itself wishes to cultivate the land in an erosive manner, but that it wishes the farmer to relinquish the right to do so. Accordingly, the rental agreement would require the farmer either to keep the land idle for a certain period of time or to cultivate it in a manner that causes less erosion to occur. The farmer gains a rental payment for the partial interest conveyed to the government, and the government gains a public amenity, such as cleaner water, that the land provides when used less intensively.

These tools were first established with respect to highly erodible soils and wetlands in the 1950s. But it is only in the 1980s and 1990s that they have become as central to United States conservation policy as they are today. Today they are used by both public and private agencies at the national as well as the state and local levels (Table 1). Private agencies have protected about 14 million acres (6 million hectares) of environmentally sensitive land in the United States to date through the voluntary acquisition of partial interests (Wiebe, 1995). By far the largest such federal programme today is the Conservation Reserve Program (CRP), through which as many as 36 million acres (15 million hectares) of highly erodible land have been rented by the federal government at an average rate of US\$ 50 per acre (US\$ 124 per hectare) per year, for a total cost of almost US\$ 2 billion per year (Table 2). The farmer or landowner agrees

Table 1. Agencies involved in acquisition of partial interests

	National	State & Local
Public	Federal government agencies (for example, the Natural Resources Conservation Service, the Forest Service, the Fish and Wildlife Service, and the National Park Service)	State & local government agencies (for example, the Maryland Agricultural Land Preservation Foundation and the Lancaster County Agricultural Preserve Board)
Private	National nonprofits (for example, The Nature Conservancy, the Trust for Public Land, the Conservation Fund, and the American Farmland Trust)	Land trusts (for example, the Trust for New Hampshire Lands, the Maine Coast Heritage Trust, the Iowa Natural Heritage Foundation, and the Montana Land Reliance)

Source: Wiebe et al. (1996).

Table 2. Participation in selected easement and easement-like programmes

Region ¹	Conservation Reserve Program		Wetlands Reserve Program (inc. Emergency Signups)		State and Local Farmland Protection Programs	
	Acres ³	\$/acre/year	Acres ³	\$/acre	Acres ³	\$/acre
Appalachia	1 158 124	54	18 514	n.a.	1 255	1 422
Corn Belt	5 603 333	74	115 621	n.a.	0	—
Delta States	1 248 403	44	148 667	n.a.	0	—
Lake States	3 008 337	59	18 664	n.a.	0	—
Mountain	6 687 264	40	3 410	n.a.	1 904	1 709
Northeast	226 411	59	6 383	n.a.	337 092	1 666
Northern Plains	9 664 110	46	25 254	n.a.	0	—
Pacific	1 791 182	50	27 910	n.a.	56 435	1 725
Southeast	1 692 580	43	5 257	n.a.	0	—
Southern Plains	5 342 989	40	21 798	n.a.	0	—
Total ²	36 422 733	50	391 478	600	396 686	1 674

¹ Appalachia = KT, NC, TN, VA, WV; Corn Belt = IL, IN, IA, MO, OH; Delta States = AR, LA, MS; Lake States = MI, MN, WI; Mountain = AZ, CO, ID, MT, NV, NM, UT, WY; Northeast = CT, DE, ME, MD, MA, NH, NJ, NY, PA, RI, VT; Northern Plains = KS, NE, ND, SD; Pacific = CA, OR, WA; Southeast = AL, FL, GA, SC; Southern Plains = OK, TX.

² Excludes Alaska and Hawaii.

³ One acre = 0.4 hectares.

Source: Wiebe et al. (1996).

to keep the land idle and under a conservation cover of grass or trees for 10 years.

A much smaller programme is the Wetlands Reserve Program (WRP), which is like the CRP in that it acquires partial interests from private landowners for conservation purposes, but which differs from the CRP in several ways. First, it targets wetlands rather than highly erodible soils, although there is certainly some overlap between the two resources. Second, instead of simply *renting* cultivation rights, the WRP may also *purchase* cultivation rights from landowners in perpetuity in the form of conservation easements. As a result, instead of annual rental payments, the WRP offers one-time payments calculated as the difference between the market value of the land in agricultural production and the market value of the land as a restored wetland. Not surprisingly, the loss of cultivation rights represents a major portion of the value of such lands. However, in a third difference from the CRP, the WRP allows landowners to graze livestock and harvest timber, as long as the wetland is preserved, so some economic value remains with the landowner. Wetland easement payments currently average about US\$ 600 per acre (US\$ 1482 per

hectare), with about 400 000 acres (162 000 hectares) enrolled so far (Table 2).

A third policy context in which partial interests are used is that of slowing the loss of farmland to more intensive uses, especially urban development. A number of states in the United States have established farmland protection programmes since the 1970s, buying agricultural conservation easements for an average of about US\$ 1700 per acre (US\$ 4199 per hectare) from willing landowners who agree to keep their land permanently in agricultural production rather than develop it. Such programmes originated in the densely populated northeastern United States, and have spread more recently to the west coast and to the Rocky Mountain states (Table 2). A federal farmland protection programme was established for the first time in 1996.

While we have focused so far on public acquisition of partial interests in private lands, partial interests are also relevant in the management of common property resources. Common property resources combine features of both public and private goods (Ostrom, 1994; Dasgupta and Mäler, 1994). They are like public goods in that it is costly to develop institutions to exclude potential beneficiaries. The resource in question might be mobile (such as air), for example, or it might be spread over a wide area (such as rangeland). On the other hand, common property resources are like private goods in that those resources used or consumed by one party (such as forage or water) are not available to others. When rights to common property resources are imperfectly defined or enforced, such resources are in effect free goods, open to access (and thus potentially subject to overexploitation) by all.

In the case of publicly owned rangeland in the western United States, open access prevailed at the turn of the century, contributing to overgrazing and environmental degradation. In response, the federal government established grazing permits—a form of private interest in public lands—which allow (indeed require) ranchers to graze a specified number of livestock in a particular area for a specified period of time. Continuing debate about the effectiveness of these permits in accommodating multiple demands on rangeland resources, including both livestock grazing and wildlife habitat preservation, has led a wide spectrum of observers to suggest the establishment of transferable forage rights—partial interests in federal rangeland that would be allocated on a competitive market basis between ranchers, environmental groups, and other interested parties (Nelson, 1996; Council of Economic Advisers, 1997).

We have introduced the examples above with a deliberate focus on particular partial interests in each case. It is important to note, however, that each partial interest discussed represents only one stick in the bundle of rights that characterizes each resource in question, and that the remaining rights may themselves be held by multiple stakeholders. In the case of the CRP, for example, the federal government negotiates rental contracts for enrolled parcels, while the landowners retain title. Still others may hold rights to hunt on CRP land. On WRP land, third parties may acquire rights to hunt, graze livestock, or harvest timber. Similar nuances characterize farmland protection programmes, while public lands are typically managed to accommodate multiple interests, including (in some areas) the traditional hunting and fishing rights of Native American communities.

Despite the variety of these examples, partial interests have been used as policy tools in the United States primarily to deal with environmental externalities (although there are many examples, such as mineral rights or

water rights, of partial interests that are defined and traded to accomplish private economic objectives). In developing countries, by contrast, livelihood externalities may represent more immediate policy concerns, requiring mechanisms to accommodate and protect the interests of multiple individual users.

Policy considerations for developing countries

The partial interests in land that are represented by these rental agreements and conservation easements are the shades of grey that blur the conventional delineation of private property in the United States. They are means by which public agencies or private non-profit conservation groups can influence the use of private land without incurring the political costs of regulation or the full financial costs of outright land acquisition. Precisely because of their flexibility and the variety of resource situations in which they can be applied, they involve potentially significant transactions costs.

By their nature, partial interests in land represent complicated relationships between multiple parties having different and possibly conflicting objectives with regard to a particular parcel of land. The process of trading partial interests requires a general acceptance of who holds what rights to begin with, negotiation of what rights are to be conveyed, and agreement about what those rights are worth. Furthermore, even after a partial interest in land is conveyed, it requires ongoing monitoring, and potentially enforcement as well, to ensure its continued effectiveness over the longer term.

Land tenure systems in many developing countries have been moving in the opposite direction—from complicated patterns of ‘grey’, where customary systems accommodate the use rights (not necessarily transferable) of multiple parties—toward nominally simpler ‘black and white’ systems which accord full (and transferable) ownership rights to a single individual. This has often been associated with titling programmes, privatization, and development of land markets (Maxwell and Wiebe, 1998). In the process, many customary rights of access or use (such as grazing animals on crop residues, taking fallen branches for firewood, or collecting medicinal plants from hedgerows) are disregarded (Rocheleau and Edmunds, 1997; Meinzen-Dick *et al.*, 1997). Although these rights may be very important for livelihoods, especially those of poor households, they are often seen as a necessary casualty in the drive toward market development.

What the United States’ experience shows is that complex partial interests can be defined and protected even within a relatively highly developed land market. Not all rights need be held by a single individual, and partial interests can be transferred independently of each other. As the constituent elements of land tenure systems, partial interests are not tied to any particular tenure regime. The rights can be held by individuals, communities, interest groups (such as environmental NGOs), corporations, or the government. For example, a private company may hold specific rights to harvest from a community woodlot, or a community may hold rights on public lands.

Partial interests can potentially be defined and conveyed within a wide range of tenure systems, whether the system as a whole draws its authority from community norms and traditions, or from a formal legal system established by the state, or from a combination of the two—as long as its authority is recognized by all parties to the transaction. Partial interests offer a means by which rights can be exchanged, and multiple objectives

Table 3. Relative costs of alternative land policy strategies*

Item	Regulation	Partial interest acquisition	Land acquisition
Negotiation	Low	High	Medium
Acquisition	Low	Medium	High
Monitoring	Medium-high	Medium-high	Low
Enforcement	Medium-high	Medium-high	Low
Political	High	Low	Low

Note: relative magnitudes are intended to be comparable across columns, but not across rows.

*Each strategy may also have additional costs not included here. Regulation, for example, may involve unintended environmental costs, as when concern about possible future designation as endangered species habitat induces landowners to clear habitat or harvest timber prematurely (Stroup, 1997). See also Hanson (1996).

Source: Wiebe et al. (1996).

pursued, even in the process of transition between customary and statutory or market-based land tenure systems.

Nevertheless, because of the complexity involved in acknowledging diverse claimants on a single piece of land, partial interests do require a well-functioning institutional infrastructure for ongoing monitoring and enforcement. In the United States, where institutional infrastructure is the domain of government agencies and lawyers, it is not surprising that the steps involved in conveying partial interests in land are costly (Table 3). Data are scarce, but limited evidence suggests that the costs of easement negotiation and appraisal, for example, are small relative to the cost of acquisition itself, perhaps on the order of 10% or less. On the other hand, experience with conservation easements in the United States is still too short to allow us to know much about the long-term costs of monitoring and enforcement. These are potentially quite high, particularly as easement-encumbered land is acquired or inherited by individuals who were not party to the original conveyance, and may thus be less likely to understand or respect the terms of the original agreement. Table 3 suggests that, while partial interests may offer advantages over a regulatory approach in terms of political costs, and over outright land acquisition in terms of acquisition costs, the costs of negotiation, monitoring, and enforcement leave the overall ranking of the three policy strategies ambiguous.

In many developing country contexts, the institutional infrastructure of customary tenure regimes may accommodate multiple claimants (e.g. Williams, 1997; Rocheleau and Edmunds, 1997), but government agencies and court systems have been less adept in this regard. However, many of the regulatory approaches to dealing with environmental externalities (e.g. erosion control regulations or prohibitions on forest use) have also been ineffective. The partial interests approach requires negotiation among all parties with a stake in the resource, and this process of negotiation increases the likelihood that all users are aware of and will abide by their part of the agreements. It is important to recognize that all users may not be equally able to articulate and protect their interests in such negotiations, and that in some cases, assistance may be necessary to ensure that stakeholders are adequately included (Leach *et al.*, 1997).

Such tools may be appropriate in other common property contexts as well, although the problem becomes more complicated in developing countries when poverty and subsistence thresholds introduce additional constraints on the behaviour of resource users (Perrings, 1989; Larson and Bromley, 1990). Dasgupta and Mäler (1991) distinguish between local and

global common property resources, noting that the institutional costs of establishing adequate property rights to a global common property resource, such as the Earth's atmosphere, are prohibitive (although partial interest-based mechanisms are among those being considered in ongoing multilateral discussions about global climate change). By contrast, Dasgupta and Mäler argue that the interests of those most dependent on *local* common property resources may well be best served in an equitable and sustainable fashion simply by placing (or restoring) control in local hands.

Zimbabwe's Campfire programme provides one of the most notable examples of this approach. Local communities have been accorded rights over wildlife on their lands, and receive a share of the income from hunting and tourism. Instead of relying solely on government enforcement of bans on poaching, this approach attempts to give local communities a stake in the resource, so that they have a greater incentive to protect it over the long term (Murphree, 1993). Accommodating the livelihood needs of local residents may prove to be a more effective means of protecting wildlife biodiversity and other environmental interests than externally imposed regulations (Wells *et al.*, 1992).

Two additional and very important policy considerations should also be noted here. First, the use of partial interests as policy tools addresses the distribution of rights and opportunities within an economic system that is itself part of a larger system, the natural ecosystem (Daly, 1991). Questions of the optimal scale of economic activity, though beyond the scope of this paper, are also central to the issue of sustainable development.

And second, the fact that voluntary exchange of partial interests occurs between willing sellers and willing buyers, and that there is no shortage of interested participants (at least in the United States thus far), does not guarantee that such programmes are universally popular among others who are not parties to the exchange. Most of the programmes described in Section 3 are designed to address environmental externalities of private land use, such as sedimentation and habitat loss. As such, they are intended to provide environmental benefits beyond the boundaries of the participating properties. Nonetheless, market solutions may themselves impose other externalities on neighbouring communities that are dependent on traditional patterns of resource use for their livelihoods, or even on more distant communities (including those in developing countries) that are affected by food-price responses to large-scale public and private land retirement programmes.

It is interesting to note that such concerns are analogous to those noted by Amartya Sen in his work on entitlement and deprivation (e.g. Sen, 1981). Sen argued that people suffer deprivation not because markets fail, but because markets, operating through a given system of property rights and legal relations, work 'with a vengeance' (p. 166) to exclude those who lack an effective voice. Poor households (especially those without formal land ownership) offer the clearest example of those who may be excluded. Even within landed households, women may have limited ability to protect their interests under market systems because they lack control over cash, or because titles are registered under the male head of household (Lastarria-Cornhiel, 1997; Meinzen-Dick *et al.*, 1997). The challenge for policy makers who would use property rights as tools to accomplish a broad range of sustainable development policy objectives is to define and distribute those rights in such a way that all interested parties can participate effectively in the markets that will operate as a result.

Conclusion

The process of market development has often been accompanied by simplification of tenure into systems where all rights are held by a single 'owner'. But other potential users, and society at large, have a stake in the ways in which land and other resources are held and used, and simple ownership systems have often generated negative externalities on the environment or the livelihoods of neighbours. The interests of other stakeholders, which may be accommodated in customary tenure systems, are often lost in the transition to statutory tenure systems. Partial interests in land offer a more refined alternative to simple ownership. Even within the formal legal structures that characterize property rights in the United States, partial interests have proven to be flexible, popular, and effective tools for land use and conservation policy involving lower political costs than a strictly regulatory approach and lower acquisition costs relative to outright land purchase. This suggests the potential for wider application of partial interests as policy tools for a broad range of objectives associated with sustainable development.

But partial interests also require considerable institutional infrastructure and involve potentially significant transactions costs, including monitoring and enforcement obligations over the longer term. This raises the question of whether appropriate institutional infrastructure exists—either through the courts or through customary institutions—to accommodate and protect the interests of multiple claimants on resources in developing countries. If market mechanisms are used to allocate and trade partial interests, it raises the further question of whether some claimants will remain excluded. This is especially critical where basic needs of the poor are at stake. Sustainable development requires more than market-led growth; it also requires attention to maintaining the environment and the livelihoods of all members of society. The establishment and distribution of partial interests in land and other resources—and the fundamentally political choices that such actions represent—are critical in defining the path that development will follow.

Acknowledgements

We would like to thank three anonymous reviewers for their helpful comments, and William Whichard of IFPRI for his assistance in preparing this manuscript.

References

- Baland, J.-M. and Platteau, J.-P. (1996) *Halting the Degradation of Natural Resources: Is There a Role for Rural Communities?* Clarendon Press, Oxford.
- Bromley, D. W. (1997) Constitutional political economy: property claims in a dynamic world. *Contemporary Economic Policy* 15(Suppl.4), 43–54.
- Bruce, J. W. and Migot-Adholla, S. E. eds (1994) *Searching For Land Tenure Security In Africa*. Kendall/Hunt (for the World Bank). Dubuque, Iowa.
- Council of Economic Advisers (February, 1997) *Economic Report of the President. Together With The Annual Report of the Council of Economic Advisers*, U. S. Government Printing Office, Washington, DC.
- Daly, H. E. (1991) Elements of environmental macroeconomics. In *Ecological Economics: The Science and Management of Sustainability*, Chapter 3. Columbia University Press, New York.

- Dasgupta, P. and Mäler, K.-G. (March, 1994) *Poverty, Institutions, and the Environmental Resource Base*. World Bank Environment Paper, No. 9.
- Dasgupta, P. and Mäler K.-G. (1991) The environment and emerging development issues. *Proceedings of the World Bank Annual Conference on Development Economics*, 1990.
- Goldstein, J. H. and Watson, W. D. (1997) Property rights, regulatory taking, and compensation: implications for environmental protection. *Contemporary Economic Policy* 15(Suppl.4), 32–42.
- Hanson, N. (1996) Family-owned forests in an era of regulatory uncertainty. *Proceedings of the Symposium on Non-Industrial Private Forests: Learning From the Past*. Prospects for the Future, Washington, DC.
- Kendrick, A. (1996) Comments on Fisheries. Submission to Gender and Property Rights E-mail Conference, January 16, International Food Policy Research Institute, Washington, DC.
- Larson, B. A. and Bromley, D. W. (1990) Property rights, externalities, and resource degradation: locating the tragedy. *Journal of Development Economics* 33, 235–262.
- Lastarria-Cornhiel, S. (1997) Impact of privatization on gender and property rights in Africa. *World Development* 25(Suppl.8), 1317–1334.
- Leach, M., Mearns, R. and Scoones, I. (1997) Institutions, consensus and conflict: implications for policy and practice. *IDS Bulletin* 28(Suppl.4), 90–95.
- Maxwell, D. and Wiebe, K. (1998) *Land Tenure and Food Security: A Review of Concepts, Evidence, and Methods*. University of Wisconsin Land Tenure Center Paper No. 129, Madison, Wisconsin. January.
- McElfish, J. M. Jr. (1994) Property rights, property roots: rediscovering the basis for legal protection of the environment. *Environmental Law Reporter* 24, 10231–10249.
- Meinzen-Dick, R., Brown, L. R., Feldstein, H. S. and Quisumbing, A. R. (1997) Gender, property rights, and natural resources. *World Development* 25(Suppl.8), 1303–1315.
- Murphree, M. W. (1993) *Communities as Resource Management Institutions*. Gatekeeper Series, No. 36, International Institute For Environment and Development, London.
- Nelson, R. H. (1996) *How to Reform Grazing Policy? Creating Forage Rights on Federal Rangelands*. Competitive Enterprise Institute, Washington, DC.
- Ostrom, E. (1994) Neither Market Nor State: Governance of Common-Pool Resources in the Twenty-First Century. Lecture Series, International Food Policy Research Institute, Washington, DC.
- Perrings, C. (1989) Optimal path to extinction? Poverty and resource degradation in the open agrarian economy. *Journal of Development Economics* 30, 1–24.
- Rocheleau, D. and Edmunds, D. (1997) Women, men and trees: gender, power, and property in forest and agrarian landscapes. *World Development* 25(Suppl.8), 1351–1371.
- Segerson, K. (1997) Government regulation and compensation: implications for environmental quality and natural resource use. *Contemporary Economic Policy* 15(Suppl.4), 28–31.
- Sen, A. (1981) *Poverty and Famines: An Essay on Entitlement and Deprivation*. Clarendon Press, Oxford.
- Serageldin, I. (1996) Sustainable development: from theory to practice. *Finance and Development* 33(Suppl.4),
- Stroup, R. L. (1997) The economics of compensating property owners. *Contemporary Economic Policy* 15(Suppl.4), 55–65.
- Vosti, S. A. and Reardon, T, eds (1997) *Sustainability, Growth, and Poverty Alleviation: A Policy and Agroecological Perspective*. The Johns Hopkins University Press, Baltimore.
- Wells, M., Brandon, K. and Hannah, L. J. (1992) *People and Parks: Linking Protected Area Management with Local Communities*. World Bank, World Wildlife Fund, USAID, Washington, DC.
- Wiebe, K. (1995) Land Trusts Protected 14 Million Acres as of 1994. *Agricultural*

- Resources and Environmental Indicators Update* No. 13. Economic Research Service, U.S. Department of Agriculture, Washington, DC.
- Wiebe, K., Tegene, A. and Kuhn B. (1996) *Partial Interests in Land: Policy Tools for Resource Use and Conservation*. Agricultural Economic Report No. 744. Economic Research Service, U.S. Department of Agriculture, Washington, DC.
- Williams, T. (1997) Multiple Uses of Common Pool Resources in Semiarid West Africa: A Survey of Existing Practices and Options for Sustainable Resource Management. Environment and Production Technology Division Workshop Summary Paper No. 5, International Food Policy Research Institute, Washington, DC.
- World Bank (1997) *Five Years After Rio: Innovations in Environmental Policy*. Environmentally Sustainable Development Studies and Monographs Series No. 18 (June).

13. Fox, J. 1998. **Mapping the Commons: The Social Context of Spatial Information Technologies.** The Common Property Resource Digest #45:1-4. Reprinted with permission from the Common Property Resource Digest and the author.

The Common Property Resource Digest

NO. 45

QUARTERLY PUBLICATION OF THE INTERNATIONAL ASSOCIATION FOR THE STUDY OF COMMON PROPERTY

MAY 1998

CPR FORUM

Mapmaking

Commentary

Mapping the Commons
Jeff Fox..... 1

Response

1. Mapping Politics
Jake Kosek..... 4

2. Mapping and the Ownership of Information
Mac Chapin..... 6

3. Mapping, the White Man's Burden
Robert Rundstrom..... 7

Letter to the Editor..... 10

Recent Publications..... 11

News Alert..... 15

Announcements..... 16

IASCP Membership Form..... 17

IASCP Conference..... 18

CPR FORUM COMMENTARY

Mapping the Commons: The Social Context of Spatial Information Technologies

JEFF FOX

Director, Program on Environment
East-West Center, Honolulu, Hawaii

Spatial information technologies include everything from simple sketch maps and three-dimensional models to complex remote sensing image-analysis software, global positioning satellites (GPSs), and geographic information systems (GISs). Sketch maps can be drawn with a stick in the sand, with pencil and paper, or with blood on boards; three-dimensional models add a third, topographic dimension; and images--aerial and satellite--are now used to define space. Survey maps are spatially accurate but labor intensive and expensive. More recently, GPS systems for surveying remote places and GISs for integrating the various layers of information into seamless pictures of reality have made it possible to explore spatial relationships in wholly new ways. Given the variety of forms, especially image representations, that maps can take, spatial information is a more accurate generic term for these systems of recording, analyzing, and presenting spatial data.

For centuries mapmaking has been a tool for recording and controlling space. The eminent cartographer, J. B. Harley, calls mapmaking the "science of princes." Maps, on paper or in the mind, however, have also been used by traditional peoples for thousands of years for defining the boundaries of their homes. At the turn of the century, for example, a Russian cartographer, Bruno Adler, compiled fifty-five maps drawn on wood, paper, and skin originating from native societies and drawn prior to contact with European explorers. More recently, anthropologists and geographers have been using spatial information technology for helping indigenous peoples defend their customary rights against the incursions of newcomers. In his book *Maps and Dreams*, Hugh Brody presents "map biographies" for Ojibwa, Yukon, Inuit, Naskapi-Montagnai, and Dene groups in the Canadian Northwest. These biographies were developed by asking hunters, trappers, fishermen, and berry pickers to map out all the land they had used in their lifetimes, for each species marking gathering locations and campsites. Brody's "map biography" method has become virtually the sole method used in Canada for documenting officials claims to ancestral lands because of the ease and straightforwardness of documentation, the visual effectiveness of the composite map, and the aura of scientific objectivity derived from the survey methodology. In the Americas, Mac Chapin, director of Native Lands, a program of the Tides Foundation that works to secure indigenous land rights in Central America, claims "maps by Indians are the first cut on creating effective strategies to

Letters, announcements, and other submissions for the July 30 issue of the CPR Digest will be accepted until July 10. Please send to: Editor, CPR Digest, Department of Environmental Science, Policy and Management, U.C. Berkeley, 145 Mulford Hall, Berkeley, CA 94720 USA.

For CPR Digest business, contact: Editor, CPR Digest, Department of Environmental Science, Policy and Management, U.C. Berkeley, 145 Mulford Hall, Berkeley, CA 94720 USA.

For membership, dues, back issues, and missing copies, contact IASCP Secretary Treasurer, Workshop in Political Theory and Policy Analysis, Indiana University, 513 N. Park, Bloomington, IN 47408 USA; iascp@indiana.edu

For questions about IASCP papers and research, contact Charlotte Hess, Information Officer, IASCP, Workshop in Political Theory and Policy Analysis, Indiana University, 513 N. Park, Bloomington, IN 47408 USA iascp@indiana.edu.

The Common Property Resource Digest

Published with support from the Rockefeller Brothers Fund

Editor-in-Chief
Nancy Lee Peluso

Managing Editor
Julie E. Greenberg

Readers who would like to comment on the issues in this forum may send a letter of no more than 350 words to:

Editor, CPR Digest
Department of Environmental Science, Policy and Management
University of California, Berkeley
145 Mulford Hall
Berkeley, CA 94720 USA
E-mail: cprdiges@nature.berkeley.edu

INTERNATIONAL ASSOCIATION FOR THE STUDY OF COMMON PROPERTY (IASCP)

CURRENT OFFICERS

President
Fikret Berkes

President-Elect
Bonnie McCay

COUNCIL

Janis Alcorn
Susan J. Buck
Erling Berge
David Feeny
Anil Gupta
Susan S. Hanna
Margaret McKean
James Murombedzi

CPR Digest Editor
Nancy Peluso

Information Officer
Charlotte Hess

Secretary Treasurer
Michelle Curtain

© 1998 IASCP

preserve indigenous homelands and their biodiversity." The journal *Cultural Survival* devoted its April 1995 volume to presenting examples of projects using spatial information technology to map indigenous territory. Case studies included the Embera, Wounann, and Kuna peoples in the Darien region of eastern Panama and the Yuqui people in lowland Bolivia.

In the Asia and Pacific region, the mapping of traditional or culturally specific aboriginal land interests has become one of the mechanisms by which non-aboriginal Australia arbitrates rights to aboriginal land and recognizes the legitimacy of claims made. In the Philippines, the Department of Environment and Natural Resources has begun using GPS technology to fulfill a legislated mandate to map ancestral lands of indigenous minorities and to begin a process of returning usufruct rights to these lands.

Maps of perceived or alternative boundaries are important, but a community's best chance for retaining access to a resource may be to prove that they are managing it. Maps are the most effective, legitimate, and convincing means available to villagers for demonstrating to outsiders that they manage their natural resources and hence for proving claims to their customary lands. Spatial information technology can help demonstrate a close and continuing connection between a community and their land by illustrating the spiritual, economic, and residential dimensions of human-land relations such as ethnohistory, folk taxonomies of flora and fauna and other natural features and processes, place names, myths and legends, etc.

One set of methods which has emphasized mapping as a means both for understanding how communities use space and for empowering communities to resolve resource management conflicts is participatory rural appraisal. Participatory mapping and modeling methods encourage villagers to draw and model their village and resources, deciding what to include, what to delete, and how to modify details. In northern Thailand villagers use large three-dimensional models that show relationships of villages, forests, swiddens, and the water system. Foresters and villagers then collaborate to develop new zonation schemes and conservation and development activities. Resource managers in the Kayan Mentarang Nature Reserve in East Kalimantan, Indonesia, are using oral histories, sketch maps, and GPS and GIS technologies to collect the views of different local groups such as village elders, youths, men and women. These views are then compared and discussed in order to revise village and reserve boundaries, develop a commonly agreed land-use zonation model, strengthen local customary institutions, and raise awareness of nature conservation.

The idea that the location of people in space has profound social and cultural influences is not new. Both anthropologists and geographers have contributed to the formal, cognitive aspects of spatial orientation, in their work on mental maps. Harold Conklin's work with the Ifugao in the Philippines is perhaps one of the best examples of using spatial information

for understanding interrelationships between human society and ecological processes. Conklin demonstrated that aerial photographs and topographic maps are useful in relating indigenous land classifications, farming practices, and tenurial arrangements to locationally precise land units, particularly when they are coupled with detailed ground surveys and information collected from interviews with local inhabitants.

Indigenous peoples in many parts of the world are trying to use spatial information technology to capture their unique relationship to the land while maintaining a scientific objectivity and standardization to ensure the maps are effective tools for communication. The challenge is to record aboriginal land use perspectives, on base maps and in databases that originate from western frameworks, without losing the true picture of how a tribe and their ancestors lived with the land. This is not an easy task, partially because cultural or symbolic spaces are not necessarily the same as natural or cartographic space. Robert Rundstrom, a geographer at the University of Oklahoma, suggests that the epistemological system within which GIS is grounded is largely incompatible with the corresponding systems of indigenous peoples. He suggests, for example, that the four cardinal directions inadequately represent the spatial relations of the Zuni (Ashiwi in the southwestern United States) who add zenith, nadir, and center to create a seven-dimension spatial schematization; or the Inuit in Canada who, because of the appearance of the sun's daily and annual cycles in their world, have not organized Arctic space around any of the four directions.

Thus while it seems self-evident that space is an important variable in determining how people use land, with few exceptions spatial information technology has not been used for documenting the spatial organization that cultures impose on the landscape. Spatial information technology appears to be most useful for furthering our understanding of the spatial structure of material culture and the relationship between distance and human interactions. Perhaps through uniting spatial information technology with participant observation techniques, as some researchers are beginning to do, we can begin to interpret the patterns cultures impose on their landscapes. The meaning of these patterns, or the "ethnological content of spatial patterns," however, may remain beyond the capability of this technology to capture or interpret.

While spatial information technology provides tools for telling alternative spatial stories, for giving voices to people at the periphery of the developing world, it is necessary to understand the context and implications of these efforts. Maps of customary land are generally created through a series of interviews with local people. On the basis of these interviews and fieldwork, researchers translate an informant's mental map of customary land into a conventional cartographic map. Mental or cognitive mapping is a process by which an individual acquires, codes, stores, recalls, and decodes information about the relative locations and attributes of phenomena in his everyday spatial environment. We must realize, however, that

an individual does not passively react or adapt to the environmental forces impinging on him, but brings a variety of cognitive activities to bear. Hence, cognitive maps have been characterized as incomplete, distorted, schematized, and augmented, and suggest that we recognize that both group similarities and idiosyncratic individual differences exist.

Likewise, customary systems of land and sea tenure are typically fluid and flexible, a characteristic that facilitates adjustments to ecological, economic, and demographic changes. Given the nature of mental maps (incomplete, distorted, schematized, and augmented, with both group similarities and idiosyncratic individual differences) and the nature of boundaries of customary lands (fluid and flexible), the question arises, is it legitimate to translate mental images into cartographic maps to define the boundaries of customary lands? The flexible nature of mental maps makes them ideal for capturing the fluidity of customary boundaries. Problems arise, however, when we use spatial information technology to translate these images into cartographic maps.

J. B. Harley noted that maps impinge invisibly on the daily lives of ordinary people just as the clock, as a graphic symbol of centralized political authority, brought 'time discipline' into rhythms of industrial workers. While both maps and legal tenure instruments (land certificates) change the character of customary systems, the effects of maps may be greater. Customary rights within a bounded area can be left to the local community to define. But cartographic maps define the boundary of a system and destroy the fluid and flexible character of the perimeter. The change may be inevitable, but it should be recognized that when we map a customary tenure system, we change its intrinsic quality.

Another consequence of mapping system boundaries is the potential it creates for conflict within villages and between neighboring villages. As long as boundaries remain fluid and flexible, defined only in each person's mental image of the landscape, conflicts between competing interests (within villages or between neighboring villages) can be minimized. Once boundaries are mapped and legitimized by the state, however, conflicting images of reality cannot be overlooked any longer and must be addressed. Researchers in Indonesia, for example, noted boundary disputes between the villages they mapped in the Kayan Mentarang Nature Reserve in East Kalimantan, Indonesia, and neighboring villages. In order to minimize conflict, land managers who have continued to map land use in this area no longer map village boundaries. The potential for conflict when customary boundaries are mapped should not be underestimated.

This review suggests that in terms of the small rural communities traditionally studied in cultural ecology, spatial information technology is being used in an attempt to empower local people to map their customary resources. Researchers and resource managers are using spatial information technology to balance the power of maps, giving local people some of the

mapping capability traditionally enjoyed by national governments and elites. This review cautions, however, that while spatial information technology may enable local people to make claims against the state, this power comes with a price--it destroys the fluid and flexible nature of their traditional perimeters. It also cautions that while maps can be an empowering tool, helping a local community define itself in relationship to the landscape and to the political forces that shape and influence it, maps can also be used to disinherit them.

While several authors have questioned the implications of this technology for surveillance and loss of privacy, little has been written in the cultural ecology literature on this question. One exception has been Robert Wavey, a Native American, and member of the Manitoba Northern Chiefs GIS Development Project. Wavey argues that complete indigenous control of traditional land-use information is fundamental to maintaining the proprietary nature of much of the resource and land use information. This suggestion should be taken seriously. The use of spatial information technology in cultural ecology research does pose problems of surveillance and privacy of local informants.

Does spatial technology allow us to go beyond mechanical spatial analyses or to understand the "why of where" questions of human-environment interactions? I think the answer is a qualified yes. This technology does not help us understand the deep structure of consciousness, or what geographer John Pickles in his book *Ground Truth: The Social Implications of GIS* calls "an ontological, existential understanding . . . of man's spatiality as the precondition for any understanding of places and spaces." But by relating individuals and groups of individuals to their landscape and to their history in that landscape, this technology begins to help us understand why we are where we are.

Perhaps the greatest frustration researchers have met using this technology to study human-environment interactions, however, has been an inability to readily integrate data from different scales and time periods into a broader understanding of how people have adapted to and modify their environments, and how they regulate and manage resources. Better methods need to be developed for utilizing spatial information technology for linking different data sources. But even with better methods, researchers will be faced with the problem of identifying which social, economic, and political factors are the most important and determining how these factors impact human-environment interactions.

The line between spatial information technology as a potentially liberating policy formulation framework and a technology that serves to reproduce existing power relations can be very unclear. But as Nancy Peluso warned in her article on counter mapping--"given the alternative futures, of not being on the map, as it were, being obscured from view and having local claims obscured," there may be no other choice at all.

14. Peluso, N.L. 1995. *Whose Woods Are These? Counter-mapping Forest Territories in Kalimantan, Indonesia*. Antipode 27(4):383-406. Reprinted with permission from Blackwell Press.

Antipode 27:4, 1995, pp. 383-406
ISSN 0066 4812

WHOSE WOODS ARE THESE? COUNTER-MAPPING FOREST TERRITORIES IN KALIMANTAN, INDONESIA

Nancy Lee Peluso*

Forests are repositories of great wealth and ecological importance; politically, they are much more than that. Forests are often located in critical spaces that states want to control: international border areas as well as zones which might be deemed "sensitive" because of either their political-ecological importance or sociological composition. Historically, forests have also been the outposts of "outlaws" and "outcasts" and the base for many an opposition force to imperialistic powers - from 10th century "China" to 14th century Java to 20th century Peru and Vietnam (Menzies, 1992). Forest mapping was embraced early by emerging European states, first for establishing political boundaries and later for management (Kain and Baigent, 1992:132, 210).

Mapping of forest resources is therefore an intrinsically political act: whether drawn for their protection or production, they are drawings of a nation's strategic space. Forest maps pinpoint the location of valuable and accessible timber and mineral resources (Buisseret, 1992:99) and are used for zoning protection of fragile, steep, or biologically diverse areas. Forest maps have been an important tool for state authorities trying to exclude or include people within the same spaces as forest resources; maps increase state control over spaces which are sources of social unrest and valuable resources (Menzies, 1992). Mapping facilitates large-scale accumulation strategies that work to forest dwellers' disadvantage, and consolidates state control over politically sensitive areas such as border zones (Giroi and Nietschmann, 1993).

This paper examines the origins, implementation, and implications of

* Yale School of Forestry and Environmental Studies, Sage Hall, 205 Prospect St., New Haven, CT 06511

© 1995 Editorial Board of *Antipode*.

Published by Blackwell Publishers, 238 Main Street, Cambridge, MA 02142, USA, and
108 Cowley Road, Oxford OX4 1JF UK.

forest mapping in two different forms in Kalimantan, Indonesia. In Indonesia, forest maps have been an important tool of state land managers and supporting international institutions, such as the FAO, the World Bank, Worldwide Fund For Nature, and the International Union for the Conservation of Nature. In response to two decades of intensive industrial timber exploitation and the Indonesian government's superseding of customary forest rights through official planning and mapping efforts, an alternative or "counter" mapping movement has begun. Local activists, with international and sometimes government assistance of various sorts, are using sketch maps to delineate and formalize claims to forest territories and resources their villages have traditionally managed. In some cases they are matching their sketch maps to points on the Global Positioning System (GPS) and the official Indonesian forest planning maps using sophisticated software (Sirait, et. al; 1994; Momborg, 1994).

The goal of these efforts is to appropriate the state's *techniques* and *manner of representation* to bolster the legitimacy of "customary" claims to resources. The practical effect is far-reaching: the use of maps and a highly "territorialized" strategy redefines and reinvents customary claims to standing forest resources and harvestable products as claims to the land itself. The case accordingly emphasizes the dynamic nature of customary and statutory forest law, both of which can be reinvented as new "traditions" when changing political economies and technologies permit (Hobsbawm and Ranger, 1983). The case also raises some questions about the control of power when NGOs and other local groups utilize high technology empowerment strategies.

The remainder of this paper is divided into three sections. First, I review the recent literature on mapping politics. Most of this literature focuses on state politics and the uses of maps for establishing inter-state claims on territories, securing international boundaries, and other national-level territorialization strategies involving maps. Sub-national or alternative mapping strategies and their potential for confronting hegemonic government maps and map agencies have been largely ignored (cf., Orlove, 1989; Aberley, 1993; Fischer, 1994). In the second section, I give a brief history of forest mapping carried out by the Indonesian government for land use planning purposes. I also examine the changing, sometimes conflicting roles of international and domestic capital, intellectual resources, and development aid in this territorial process. In the third section, I describe the emergence of two distinct counter-mapping strategies in Kalimantan: one initiated by expatriate anthropologists and geographers working through organizations such as the Worldwide Fund for Nature and the Ford Foundation, and the other initiated by local NGOs who sometimes contract international experts to make maps of village territories. In each case, I explore the political alliances behind the local mapping efforts and the specific technical and political objectives of each enterprise. In the final

section, I consider the theoretical significance of counter-mapping strategies, in particular whether territorialization constitutes a freezing of property rights that could undermine the gains won through the appropriation of the new geographical tools wielded by the state, or a contemporary reinterpretation of evolving customary rights that increases local people's capacity to respond to the increasing territorialization of state and international resource management strategies (Vandergaest and Peluso, 1995).

The Politics of Mapping

Maps . . . exert a social influence through their omissions as much as by the features they depict and emphasize

(J. B. Harley, 1992).

A plethora of publications on the history of mapping and its place-specific political contexts and impacts have recently appeared (see, e.g., Harley, 1989, 1992; Buissere, 1992; Kain and Baigent, 1992; Wood, 1992). These are paralleled, indeed far exceeded, by the virtual explosion of literature on the social relations of spatiality, the spatial relations of social life, and the political economy of space (see, e.g., Giddens, 1984; Smith, 1984; Gregory and Urry, 1985; Soja, 1986; Cosgrove and Daniels, 1988; Harvey, 1989; Lefebvre, 1991).¹

Much of the "politics of mapping" theory is based on local/national histories in early modern and contemporary Europe and in the colonized "New World" (including the USA and Canada, with some attention to Europeanized Latin American localities). It accordingly fails to capture the distinctiveness of contemporary Third World mapping politics. The most intensive state mapping initiatives arrived on the "scenes" of the Third World with global capitalism firmly entrenched and in advanced stages, particularly in the "tigerish" economies of East and Southeast Asia. The advanced stage of mapping technology at which both national mappers and local "counter-mappers" have entered the game is also relevant insofar as using the new tools both raises the stakes of resource mapping and offers new political openings for resource users. These factors combine to make this episode in the political economy of mapping exciting, timely, and precedent-setting.

Harley (1989:278), Kain and Baigent (1992), and others have contended that cartography and mapping are uniquely sources of power for the powerful (cf., Wood, 1992). However, if maps can be seen as one of many "authoritative resources" that states mobilize to consolidate their own power (Giddens, 1984, cited in Harley, 1990:279), then local groups' appropriation of the technology of mapping may help to counterbalance or

at least offset the previous monopoly of authoritative resources by the state or capital.² This requires understanding the social and political contexts within which maps are used by local groups. Just as inclusion and exclusion are powerful political tools used by states and state-legitimated organizations to control and allocate resource access (Harley, 1988, Menzies, 1992), local groups can claim power through mapping by using not only what is on a map, but what is *not* on it. One effect of having multiple maps of a single forest, for example, could be to challenge the accuracy of a "standard" map used for planning.

An important element of such a challenge to state authority to create maps is the re-insertion of people on resource maps. Individual homesteads, settlements, and villages are routinely excluded from maps of private and state land holdings. This practice grew out of efforts of sixteenth and seventeenth century estate holders to "know" and manage lands held within their extensive domains, to enclose or privatize land from the commons, or of states' attempts to claim jurisdiction over wildlands or resource-rich areas (Harley, 1989:292). In practice, this was sometimes accomplished by artistic stylizing of settlements while trying to precisely represent the location of trees and areas of forest ownership (Daniels, 1988:61; Kain and Baigent, 1992:130; Wood, 1992). When court authorities established legal precedent by accepting the validity of maps in land disputes (as illustrated in Kain and Baigent, 1992:8, 102, 317), the role of maps as tools of the powerful was enhanced.

Not all people were excluded from forest maps at all times, however, and the inclusion of people was also a mechanism for exerting control. The location of settlements and their relationships to the feudal manor or cities have been important pieces of information to be included on maps. From the 16th century on in Germany, for example, elites claiming forest or agricultural resources, as well as the labor of peasants living within those territories, began to clamor for a change in the demarcation of the frontiers of their power from blurry zones to clear boundary lines marked in the field and on a registered map. Large estates had maps made that showed resource rights, especially hunting rights, but also rights to graze or collect wood (Kain and Baigent, 1992:123-24). As the types of rights to land and resources changed in importance, maps became more explicit means of controlling resource access. Thus in Norway from the seventeenth century, maps were used to settle disputes over both individually-held and common lands; in the eighteenth century, hunting, grazing, mining, and woodcutting rights were mapped (Kain and Baigent, 1992:105-106).

Contrary to the conclusion on hegemony that Harley draws from his extensive research on the politics of mapping (1989:301), maps can be used to pose alternatives to the languages and images of power and become a medium of empowerment or protest. Alternative maps, or

"counter-maps" as I call them here, greatly increase the power of people living in a mapped area to control representations of themselves and their claims to resources (see, e.g., Orlove, 1989). Local people may exert control directly by making their own maps or entrust a representative of their choice, such as a local NGO, to perform the task. Counter-maps thus have the potential for challenging the omissions of human settlements from forest maps, for contesting the homogenization of space on political, zoning, or property maps, for altering the categories of land and forest management, and for expressing social relationships in space rather than depicting abstract space in itself (cf. Sack, 1983; Lefebvre, 1991; Vandergest and Peluso, 1995). Counter-mapping can be used for alternative boundary-making and "to depict strategies of resistance: where to block . . . unwise development, to identify landscapes that have been damaged, to describe alternatives to the incremental destruction of sustaining habitats" (Aberley, 1993:4).

An analogous challenge to elite power historically was the secularization of the language of print. The replacement of Latin manuscripts with books, pamphlets, and newspapers written in the vernacular languages of Europe (and subsequently replacing colonial newspapers with those in local or lingua franca languages in Asia and other places) revolutionized the lives of millions of people (Anderson 1991:37-40). This "vernacularizing thrust of capitalism" (Anderson 1991:39) was the outcome of a technology transfer – the medium of print – and a shift in its orientation from an elite, limited audience to the masses (potential consumers). If we understand maps and cartography as part of an elite language of the powerful, then could we interpret the teaching of mapping skills to local people to be a new form of empowerment? In other words, is the process of counter-mapping a "vernacularization" of maps of a similar caliber? Although it is difficult to imagine the spread of mapping skills as having anywhere near the impact of the spread of print and the capacity to read, there are several ways in which counter-mapping can have a major impact.

I would argue that while counter-mapping has some potential to transform the role of mapping from "a science of princes" (Harley, 1988: 281), it is unlikely to become a "a science of the masses" simply because of the level of investment required by the kind of mapping with the potential to challenge the authority of other maps. Investment in specialized computers and software and knowledge will make the costs of mapping prohibitive for most local people, particularly in poor areas. This of course creates openings for new types of power relations around the control and knowledge of mapping technologies, both in local class relations and in the relationships between NGOs and local villagers. However, although there will necessarily be gatekeepers involved in the mapping enterprise, there are multiple ways that gates can be kept. What ultimately may be

more important for the "masses" is not the technology itself, but the content of the maps produced and the way the knowledge and information on the maps is distributed.

Another question must be asked in the course of re-representing claims to resources and formalizing them in the terms of the state as formal property rights. Whereas abstract space on a map represents merely state claims to power rather than a state capacity to enforce its claims, local people's actual control may be enhanced by exclusion from the map. When the degree of state surveillance increases, e.g., because of an increased value of resources or because of a reduction in resources located elsewhere, local people's inclusion on the map is more desirable. Once mapping begins, however, a new locus of negotiation and potential conflict over resource claims takes center stage – the allocation of resources and ostensible settlement of claims among local users by establishing boundary lines between individuals' claims. The process of mapping almost forces the reinterpretation of customary rights to resources *territorially*, thereby changing both the claim and the representation of it from rights in trees, wildlife, or forest products to rights in land.³

Indonesian Forests and Forest Mapping

In Indonesia, prior to the early 1970s, when the government developed a plan for the management of Outer Island timber resources, state forest management and planning was concentrated in Java (Peluso, 1992). In Kalimantan, forest land use planning effectively began with the passing of Basic Forestry Law No. 5/1967,⁴ which empowered the national government to control, manage, and administer all state forest lands (Barber, 1989; Zerner, 1990). Until 1966, Indonesia's first president, Sukarno, had pursued economic policies oriented toward domestic self-sufficiency, shunning most foreign investment, particularly by the "Western" (Europe, North America, Australia) capitalist countries. When Suharto took over as president in 1967, he immediately set the stage for foreign investment and capitalist development, with the passage of Foreign Investment Act no. 1/1967, representing a major reversal of economic and foreign policies from those of the previous regime. Foreign logging industries from Japan, the Philippines, the USA, and Europe were granted timber concessions, called HPH (*Hak Pengusahaan Hutan* – Permit for Forest Industry) in the Outer Islands (Manning, 1972). At the end of 1989, some 561 concessions were in operation, 294 of them in Kalimantan (FAO/GOI, cited in Potter, 1995). Untold numbers of concessions had long since folded, after having extracted and exported hundreds of thousands of cubic meters of timber.

The first of three mapping episodes directed at "forest management"

in Kalimantan accordingly consisted of notoriously inaccurate and secretive concession locations. Anecdotal evidence indicates that these maps revealed border conflicts, multiple permitting of territories, and illegal entry of one concession operator onto the concessions granted another. They ignored the physical conditions of the forest itself in designating these concession areas for timber production and whether competing claims and forms of management were already in place. A 1990 FAO study, which found 57.9 million hectares of forest had been allocated to HPHs for 43.3 million hectares of production forest, i.e., forest designated for commercial timber extraction, gives hint of the gravity of these problems (Pramono, 1991:16, cited in Moniaga, 1993:134–35).

These maps were replaced between 1981 and 1985 when provincial foresters collaborated with colleagues in agriculture, public works, and agrarian affairs, to develop plans and maps. This second set of state forest maps was called the Consensus Forest Land Use Plan (TGHK, or Tata Guna Hutan Kesepakatan) (Moniaga, 1993:134; Potter, 1995:12). Six forest land use categories were determined, on the basis of physical topographic characteristics, potential for soil erosion, rainfall, and slope. Once again, no account was taken of local people's previous claims to these lands, nor of existing vegetative cover (Potter, 1995:12). The six categories included nature reserve/conservation areas, protection forests, limited production forests, normal production forests, convertible forests,⁵ and unclassified lands.

The third and most recent state attempt to map forests in Kalimantan and other "outer" islands of Indonesia is the Regional Physical Planning Programme for Transmigration (generally known as RePPPProt), a collaborative effort between the GOI's Ministry of Transmigration and the Land Resources Department of the Overseas Development Administration (ODA) in London. The maps are part of a larger regional planning effort, which in the case of Kalimantan is to involve the resettlement of millions of people from Java, Bali, and Lombok and the creation of agricultural estates – principally for palm oil and rubber. The labor for these estates will be drawn from both immigrant and locally born populations.

Using Landsat data and aerial photographs, actual land use cover is being mapped and the areas included in different forest land use categories are being reconsidered. The discrepancies between the earlier TGHK maps and the RePPPProt maps are striking, as illustrated in Table 1.⁶

These latest planning maps also include settlement areas around urban areas and villages, cultivated fields outside of these settlements and planned forest areas. The maps underestimate, indeed, lack knowledge of, forest-based populations' claims to and management of forest territories, as well as their actual patterns of forest and agricultural land use. For example,

Table 1 Comparison of TGHK (1987)⁷ and RePPPProt by Classification (million hectares)

Forest classification	TGHK	RePPPProt
Nature Reserves/Conservation forest	14.59	18.42
Protection forest	22.53	20.25
Normal Production forest	15.39	19.79
Limited Production Forest	30.74	10.77
Convertible Forest	16.24	76.64
Unclassified Forest	48.02	1.63
Total Area	147.51	147.50

Source: GOI, n.d.:32

shifting cultivation is considered as a 'non-permanent' use of the land, although it is recognized that this may not agree with the views expressed under local customary rights. The villages associated solely with this extensive form of land use are not permanent in the long term, although some may remain on the same site for 10-20 years or more before moving elsewhere. (RePPPProt West Kalimantan Executive Summary:30).

The notion that villages practicing shifting cultivation inevitably move is outdated and historically correct for only a subset of the groups labeled shifting cultivators in Kalimantan. Recent research has shown that many groups in West Kalimantan have remained settled for several hundred years. Moreover, their land management techniques include not only protecting forest but also creating it (Peluso, 1993; Padoch, 1994).

The RePPPProt planners have not completely ignored their lack of knowledge of customary systems, but they have neither emphasized their importance in the executive summary, nor made recommendations about what to do for the purposes of their map-making exercise. The following comments are buried in Volume 1 of the main report.

For development purposes, land should not only be suitable; it must also be available, unconstrained by existing uses or claims. The Land Use/Forest Status maps at 1:250,000 scale show where shifting and settled cultivation occur, hence the general intensity of use. *They do not show boundaries of customary land use or tribal areas, although these are essential for detailed planning* (GOI, n.d.:Vol 1:51; emphasis added).

The executive summary recommends further studies of customary rights, land use, and land ownership, because,

many of the identified recommended development areas include shifting cultivation, regrowth, scrub or grassland. These may or may not be used or claimed under some form of local rights. Problems of compensation can be minimized by studies before implementation (GOI, n.d., Executive Summary:40).

Planning is apparently proceeding without further consideration of these local institutions. Much of the forest considered "Convertible" encompasses large areas of community forests long protected by local peoples (Momborg, 1994; Sirait et al., 1994; Kompas, 1993). The allocation of these forests to plantation managers, transmigration planners, and other development planners proceeds according to the map.

Not only do planners *not* know the boundaries and types of customary rights and claims of local people, they are not even sure how many people there are. Estimates of forest dependent peoples in all the Outer Islands ranged as follows:

The MOF stated in 1985 there were 1.2 million swidden agriculturalists [households] (around six million people total) using an area of 9.3-11 million ha of forest lands (Harahap, 1991:3). Another source stated that in 1960 an estimated 35.4 million ha of land was being used by 3.8 million families of swidden agriculturalists (Djajadiningrat 1990:172). The RePPPProt study team estimated that as of 1991 there were 1,199,970 families of swidden agriculturalists using 11,402,300 ha of forest land (Pranono 1991:Table 4.9). Poffenberger (1990) estimated that there are 30-40 million people living in and near 143 million ha of forest lands in the Outer Islands. . . . [he] recently doubled this estimate to 60 million people (Moniaga, 1993:135).

Both in Indonesian law and by verbal consensus, Indonesian planners recognize that extensive systems of customary law and practice (*hukum adat* and *hak ulayat*) exist throughout Indonesia, and often overlap with forest territories and resources claimed by the state, though they have no maps or other documents formally indicating their extent. Forest Law No. 5 states that the rights of indigenous peoples to land and resources covered by *adat* should be respected, except when these conflict with national or the (undefined) "public interest." Essentially this means that by law national development initiatives and planning, such as that represented by the RePPPProt, can override customary practices, laws, and claims, in the interests of the "public" represented by the state. Earlier legal efforts were made to erase some of the ambiguities of the dual Indonesian law imposed under Dutch colonialism. Basic Agrarian Act No

5/1960, for example, was meant to replace the dual system of *adat* and statutory law by providing legal rights to all Indonesian citizens. All land was to be registered according to this law, so the status of ownership was clear and treated legally under a single system, common to all parts of the country. The enormity of such a registration system notwithstanding, the Act has had little impact on most of the land in Kalimantan, where many people have not even heard of it (Moniaga, 1993:139).

Territorial Claims and Counter-mapping

Mapping by government land-use planners focuses on the land itself. In other words, maps are part of a larger resource management strategy with a strong territorial component (Sack, 1983; Peluso, 1992a; Vandergest and Peluso, 1995). This represents a shift from an emphasis on the control of the resources on the land (in the case of forests) and of the laborers needed to extract those resources (Peluso, 1992a) to a territorialized strategy emphasizing the control of land itself.

State land use planners recognize the following categories of local people's (i.e., not state) land and forest management: shifting cultivation (which they never call *swidden*), permanent cultivation (defined as continuous cultivation of at least one crop per year on wet or dry fields), thatch/brush/secondary growth. However, they only recognize local people's *territorial* rights to areas they define as "permanent cultivation" (GOI, n.d., Executive Summary:30). Forest planners recognize people's *adat* claims to certain forest trees and plants producing products such as rattan, fruit, honey,⁸ illipe nut,⁹ resins (damar), and rubber, even when these occur in state-claimed forest territories. State recognition of individual trees in the forest, however, does not translate into recognition of villagers' claims to portions of the forest as *territorial entities*. In fact, exactly the opposite is true: certain species and individual claims to them are recognized in part to allow the state to claim the forest as territory and to allocate exploitation rights (to corporations, not to villages, as a general rule) as it sees fit. Such rights include rights to harvest timber (through concessions) and rights to convert the forest to plantation tree cropping, whether oil palm, rubber, or pulpwood species (in the case of lands categorized "Convertible Forest"). The drive to maintain territorial sovereignty also reflects efforts by state managers to distribute the jurisdictions among themselves – e.g., land parcels are transferred from forest production to forest protection or conservation agencies, to transmigration and resettlement authorities, or to the Department of Plantations.

Government officials refer to Dayak¹⁰ agriculture as "shifting agriculture" (*perladiran berpindah-pindah*), a pejorative term dating back to the colonial period. In practice, the system is more rotational than shifting.

As mentioned above, some groups have hardly shifted at all. It is noteworthy, however, that shifting cultivation areas were grouped by ReliPPro mappers with areas of scrub, regrowth, and grassland, all of which are "considered available for development planning" (Executive Summary:31). That local people's territorial forest rights are not recognized is evident in the significant increase in lands included in the category of "Convertible Forest" (see table).

Local Counter-mapping Initiatives and Territoriality

Two different counter-mapping strategies have been developed in response to this situation. The first is through efforts of outsiders working for international organizations. They have suggested mapping as a way of clearly depicting and protecting local claims to territory and resources to a government that in the past ignored them. The second has been initiated by Indonesian NGOs who request or contract the services of key international groups to learn the uses of counter-mapping strategies to document forest uses, claims, and population distribution. Both strategies involve 1) the uses of low and high technology mapping techniques necessitating villagers' formation of political alliances with international NGOs and foreign experts, and 2) the assertion of specific and permanent territorial claims to resources. The key theoretical questions about the impacts of counter-mapping on resource control are to what degree new notions of territoriality reflect older ones; how the reinvention of these traditions benefits or works to the detriment of customary practice, law, and resource distribution; and how the intervention of NGOs (whether locally, nationally, or internationally based) affects the villagers' access to and control over forest resources.

Before I discuss the two types of counter-mapping initiatives, some background is needed on the ways territorial and non-territorial strategies have been part of customary Dayak forest and land management strategies. In both the past and present, Dayak forest and land management strategies have included territorial and non-territorial components. *Swidden* cultivation, practiced by most rural Dayaks, imparts territorial rights. Once old growth forest has been cleared, territorial rights are vested in either the clearer's direct descendants or in the clearer's longhouse/village (see Appell, n.d.). *Swiddening*, for many swiddening groups, is a form of rotational agroforestry, practiced on a relatively broad regional basis, and involving the management of not only swidden fields but also of swidden fallows in multiple stages of development, including standing forests. Indeed, because of ancestral territorial rights and labor input considerations, many Dayak swidders prefer to make their swiddens in secondary forest rather than primary forest (see, e.g., Jessup, 1983; Mackie, 1986; cf. Colfer, 1983).

Dayak forest managers differentiate activities within different types of forest, although they do not always establish rigid land use categories. Recent research among Land Dayaks in West Kalimantan, for example, has shown that villagers manage a range of forest types, each with different origins, species compositions, uses, and dominant sets of property relations. Borders between land use types are blurred; uses overlap (Padoch, 1994; Peluso and Padoch, 1994). These forest management categories are neither understood nor recognized by state forest managers and other government officials.

In swidden fallows of different ages and in other types of forest, Dayaks actively manage production of both timber and non-timber products, with "rules" guiding access rights varying widely across and within groups. Rights to specific products, such as clumps of rattan or individual resin-producing trees, are held by individuals who find, plant, protect, encourage, or otherwise manage them. Rights to sources of forest products (e.g., the trees which bear coveted fruits or nuts, caves where swiftlets build their nests, or rattan clusters from which canes are cut), are inherited, often bilaterally, so that both male and female siblings may obtain equal shares of their parents' resources (Appell, n.d.; Weinstock, 1979; Peluso, 1995). Although access to and management of these resources are not discussed in terms of territoriality, their management is partially territorial, in the sense that once planted or otherwise claimed, others may not clear these plants to use the land where they occur. This situation gives implicit territorial control to the individuals and groups who claim trees and other forest products.

These systems have changed in response to shifting market opportunities, and more recently, to the large influx of immigrant settlers from other parts of Indonesia.¹¹ International markets have stimulated extraction and production of forest and agroforestry products in Kalimantan for at least two thousand years, with the demanded products ranging from camphor, to incense wood, birds nests, resins, latexes, rattan, and wildlife (Peluso, 1992). Both planned and spontaneous migration of other Indonesian peoples to the island has increased pressure on the land, and will soon make the Dayaks a minority group in their own homeland.

Counter-mapping as a Joint Forest Management Strategy

One of the two counter-mapping strategies described here has been applied in the Kayan Mentarang Reserve. The Kayan Mentarang Reserve, set within the mountainous territory along the East Kalimantan-Sarawak border, was gazetted in 1980. Culturally and biologically diverse, it contains potentially important archeological remains and is home to 12 distinct ethno-linguistic groups. With elevations ranging from 200 to 2,500 meters and a tropical moist climate, the reserve is highly diverse at the

landscape level: at least five forest types have been identified. Species diversity is also high: including some 500 species of orchids, 24 species of rattan, over 50 traditional rice varieties, 96 mammal species, and some 200 species of birds, including 7 species of hornbill. Many of these plants and animals are also locally important for subsistence or sale, and have national/international importance – either for trade, protection, or both.

Since approximately 1990, the Worldwide Fund for Nature, The Indonesian Department of Forest and Nature Conservation (PHPA) and the Indonesian Institute of Sciences have been cooperating to develop a long-term conservation program in this 1.6 million hectare reserve, one of the largest in Asia. Their activities include an inventory of the reserve's extensive human and natural resources, documentation of local knowledge and resource management systems, and, most recently, efforts to record this information on maps. The maps are intended to

form the basis of talks for identifying customary forest tenure boundaries in order to assess how indigenous ways of organizing and allocating space might support or conflict with the objectives of forest protection, for evaluating different means of coordinating indigenous resource management systems with government-instituted systems of management, and as a basis for formal legal recognition and protection of customary forest tenure arrangements (Straits et al., 1994).

With funding from the Ford Foundation, a sub-project within the reserve area was established, called the "Culture and Conservation" project. The goal of the project was to record oral histories, indigenous knowledge, and village dynamics related to resource management. The mapping component was added at the suggestion of a colleague at the Environment and Policy Institute of the East-West Center. Using a method developed by Fox (1990), sketch maps of local land use and resource territories were constructed. Sketch maps reflecting local people's ways of talking about resources and their claims to them were combined with points on the GPS. A geographic information system was used to match field data with data on official land use and topographic maps. In this way, the counter-mapping agencies hoped to identify territorial conflicts, establish resource use boundaries, and better understand the ways local people conceptualize their resources.

In a paper reporting on the initial results of this exercise in one village, participants from the WWF, the Directorate General of Forest Protection and Nature Conservation, and the East-West Center discuss some basic aspects of the exercise. These include village land tenure and inheritance, the nature of individual and community decisions about resource use, and the ways that villagers have dealt with outsiders seeking access to

local resources (Sirait, et al., 1994). They then compare their results to those of the Forest Department as reflected in the TCHIK maps which first appeared in 1984. The RelPPIrot maps were not used, despite their higher accuracy, because the foresters were not happy with their results – the greater accuracy reduced the amount of territory under their control (Fox, 1994). Some of the relevant details of the case follow.

Prior to the gazetting of the reserve and the allocation of other uses by the Forest Department, the villagers kept a majority of their lands (66 percent or 11,844 ha) in two protected forests, one to be used only by the village council when wood and other products are needed for village development projects, the other to be kept for product extraction by widows and orphans (Sirait, et al. 1994:10, 12). Other human use of these lands is relatively rare. Another 31 percent (5,419 ha) of the village land is standing forest, used for collecting firewood, construction wood, resins, fruits, and other non-timber forest products by all the villagers (Sirait, et al. 1994:12).¹² Only four percent (631 ha) of the village land is under swidden cultivation, but this figure includes swidden fallows under various management regimes including fruit tree groves and rattan gardens (which are typically interspersed with a variety of planted and self-sown species in swidden fallow forests).

In sharp contrast to the locally produced maps, the land uses on the TGHK maps show no regard for current village uses or claims. On the basis of these maps, and with no ground checks, government forest planners allocated more than 50 percent of the village's land – mostly its standing forest – to two external users: the Kayan Mentarang Reserve and a timber concession. The reserve includes land classified as protection forest and convertible forest; the timber concession includes land classified as convertible forest and limited production forest. More than half the village's protected forest falls within the reserve or within another adjacent protected forest area. Twenty-five percent, however, falls either in the concession, in convertible forest not yet allocated, or in limited production forest (Sirait, et al. 1994: 415, Table 1). All of the village's cultivated land is in either the reserve or the concession area (Sirait, et al. 1994: 416). Note that such an aberration does not benefit the timber concession or the reserve because lands under village agriculture contain neither mature hardwood species for logging nor the species intended for protection. Moreover, were the villagers to prevail in a decision over whose maps to use, the outcome would be more standing forest than the government has presently planned.

The question raised by these discrepancies is whether the counter map has a chance of recognition by the government. This requires thinking about the changes that would have to be made in the government's current uses. Two major things need to happen to give the villagers' total jurisdiction over their forest. First, the status of the Kayan Mentarang

Nature Reserve would need to be changed to a National Park or a Biosphere Reserve, in order to allow some "traditional" uses of the forest by local people. This would in effect allow the recognition of local people's customary rights. However, since the counter-map was made, a request to change the reserve's status was put forth. A concurrent request by the logging company for permission to build a road through the proposed park to the timber concession led the Minister to turn down both (Fox, pers. comm., 1995).

The second change required would be to alter the forest concession agreement. This would entail changing the boundaries of the concession, a much more expensive and contestable task than changing from one conservation status to another. If villagers were allowed to control the whole conversion forest area, but none of the production forest, they would only regain a quarter of the territory usurped by the concession. The other alternative is for the villagers, the concessionaire, and the Forest Department to work out a management plan. A recent government ruling has placed the burden on the concessionaire "to recognize the existence of customary land and reach a consensus with the villagers about its management" (Sirait, et al. 1994: 416). In practice, very few timber companies have actually carried out this new requirement. In virtually all cases, conflicts over territory, resource rights, and road building continue apace. Loggers still retain a great deal of power both at a personal level through individual dealings with government officials and through their connections with the Directorate General of Forest Production, the most powerful Department in the Ministry of Forestry.

Despite initial difficulty in surmounting such obstacles, the "Culture and Conservation" mapping project has several factors operating in its favor. First, as it is one of the biggest contiguous reserves/parks in Asia, developments within it are likely to have an important impact regionally, particularly if it successfully integrates people into the planning process and the majority of local people feel they have benefited after implementation. Second is the participation of international institutions with a history of involvement in and influence on resource management policy in Indonesia.¹³ Some of these programs have emphasized taking the needs of local people into account. A key question, however, is whether the Worldwide Fund for Nature (WWF) in particular will be willing to make commitments to a conservation strategy that gives local people a strong or even dominant voice in determining how and what to conserve. Even though this village's track record so far has been congruent with most of the goals of WWF in the reserves it manages, the organization has not historically opted for such "radical" people-oriented conservation strategies. A third element in the mapping project's favor is the appropriation of the government's own mapping methods and planning tools, including the topographic map series and the GPS. Indonesia has invested consid-

erable funds in GIS technologies, satellite technology, and computerized resource management tools; acquisitions that now make the state somewhat vulnerable to counter-mapping strategies. Moreover, when peasant groups meet government mappers on their own ground, as it were, their efforts have greater legitimacy than if the maps were simple sketches.

Finally, counter-mappers have allies within the Indonesian state itself. The Ministry of Forestry has been involved in reserve planning and oversight since the beginning, including at least some discussions concerning the roles and status of indigenous peoples living in or adjacent to the park. The agency most involved has been the Directorate General of Forest Protection and Nature Preservation, as reserves and parks fall under its jurisdiction. A paradox exists here in that this Dirgen has relatively little influence *within* the MOF, especially compared to the Dirgen of Production, but has perhaps the greatest and most visible *international* support from mainstream international conservation NGOs. As forests and their protection will likely retain a place on the world political stage for some time, the choices made in this reserve could serve as precedent elsewhere, at the same time giving the beleaguered MOF some relief from the attacks made frequently on its production and protection policies.

Counter-mapping Strategies Initiated by Local NGOs

Both structurally and in terms of goals, mapping projects initiated by local NGOs unfold somewhat differently. In Kalimantan, as in parts of eastern Indonesia, several local NGOs have requested the services of mapping experts to teach and aid them in mapping village land use. The relationships between the NGOs and their international supporters differ from those engaged in the co-mapping strategy described above. These NGOs work autonomously: they do not share management of the project with government agencies, or with internationally-based NGOs like WWF. The NGOs hire the experts (sometimes the same individuals working in the project described above) with funding that they apply for on their own (but often from some of the same sources as those mentioned in previous section). Besides working in communities around a particular reserve, the NGOs may also work in various members' home villages and in forest areas around those.

Some of these NGOs' goals in mapping include documenting current and historical land uses and claims as well as locating and counting forest-dependent populations by ethnicity. In doing so, they intend to legitimate claims to areas that have not already been "converted" into production forests or plantations. They also hope to counter the impact of the national census which inadequately represents the diversity of local populations and therefore works against local claims formerly protected

by customary law (*adat*). *Adat* is generally defined or represented as the customary "laws" developed by the members of various sub-ethnic groups. However, the notion of *adat* as aboriginal customary law is itself problematic, largely because its forms and rules have been interpreted, written, and rewritten by Dutch scholars and anthropologists, and most recently by government officials seeking to homogenize variations of practice and understanding of these rules within the various sub-ethnic groups. As discussed further below, these inherent problems with the concept have not been generally acknowledged by the villagers themselves or by the activists assisting them. *Adat* as an institution has generally been romanticized as the way resources were locally managed prior to the rise of foreign investment and forest industry in the 1960s. While *adat* embodies local "traditions" and resource management practices, it is also a dynamic institution which has repeatedly changed in response to forces impinging on particular localities from the "outside," such as markets and other political-economic influences.

The nationalistic thrust of Indonesian policy over the past 50 years has emphasized the homogenizing aspects of national unity, at the expense of the country's rich ethnic diversity, although both phrases are part of the nation's motto ("Unity in Diversity"). The number of people heir to particular ethnic identities, therefore, has become an important and scarce bit of information. When the central state's mechanism for counting citizens does not differentiate them by ethnicity, the geographic extent of local claims remains unclear. Ethnic diversity and identity, expressed among other ways, through resource management and control strategies, and codified by *adat*, is an important aspect of what these local NGOs wish to document. Relating population figures to forest maps is thus a first step in understanding where conflict might arise between claimants with aboriginal or historical claims and newcomers to the local scene, including both newly settled migrants and government-sponsored resource exploitation projects. In a less formal, but no less territorialized manner, the NGOs want to help local people document their claims to the resources within particular lands and the rights to convert forest to other land uses, as they did for centuries before the nationalization of forest land.

Local NGOs are also trying to learn more effective ways to use available data such as census data. Systematic data collection and analysis has not been a strength of many NGOs until very recently. By improving their research capacity and their familiarity with the data generated for other purposes (such as the data in the census), they will enhance their legitimacy amongst both the international groups which support them and government agencies.

Both mapping strategies described above necessarily involve more educated, often urbanized members of these subethnic groups, representing

"local" situations of which they may no longer be a permanent part. The technology being used necessitates this – at least in these early stages. Moreover, they are providing a voice from these localities which has been missing from previous representations of these forested spaces. The more detailed these maps become, however, the more important will become the question of which local voices are represented.

Discussion and Conclusion

Counter-mapping is a uniquely late-twentieth century phenomenon, made possible in part by both technological developments and the last decade's push toward participatory politics and management strategies. This paper presents two means by which local people are gaining access to the tools of the powerful – maps and mapping technologies developed by and for state international resource planners and managers – and shows how they are using them to legitimize their claims to land and resources. Regardless of their future success or failure in changing state policy and state maps, however, the cases raise several critical theoretical issues. Most critical, perhaps, is the potential maps have for "freezing" the dynamic social processes which are referred to as "customary law." Secondly, will an independent strategy to map and claim resources fare better than an inclusive one that works with government forest agencies and international environmental groups with a strong presence in Indonesia?

As Foucault, Anderson, Giddens and others have discussed, the use of a new medium of expression, in this case maps, to express social relations has transformative power.¹⁴ The fear of "freezing" custom is not a new argument for Indonesia (or the former Dutch East Indies). Many writers have argued that the codification of customary law, the writing down of oral traditions, the legalizing of flexible law codes, generally resulted in "freezing" these traditions, taking away their characteristic flexibility, and therefore changing their very nature (Lev, 1985; cf. van Vollenhoven in Holleman, 1981). Similar arguments were made in colonial debates about customary law in Africa as well (Moore, 1986). In some ways, we have seen how this is so: particularly in the reification of *adat* by some contemporary NGOs as a timeless, local system, unaffected by the turbulent political economic changes of the past.

Since mapping is the visual or representational aspect of the "writing" of custom, it too can be accused of affecting the flexibility of land use and claims to resources. Certain common land and forest uses may not be clearly defined or separable from local viewpoints. Long-term rotational agroforestry strategies, for example, are not easily accommodated on maps (although they could be by using some types of GIS). Moreover,

future uses are difficult to predict, given local people's responsiveness to changes in the political-economic and environmental circumstances in which they find themselves. The question is whether maps will *preclude* future changes that ignore the information on the map. I think the answer to this question in terms of land use is no: maps may or may not be a covenant, despite the current fascination with them as a planning tool. Whether a user will harvest all or some of the rattan on his or her land all at once or gradually, whether they will plant rice, stringbeans, or rubber and fruit, are decisions unlikely to be made solely on the basis of the lines on the map. Once a group's map is empowered by both state recognition and local acceptance, the map can become a tool for negotiation of local land use controls – separating protection forest from agricultural land, for example. But empowerment should also bring the ability to change the map, to renegotiate its terms, and to alter the contents of what may remain somewhat abstract space at a larger scale. In addition, many of the boundaries on the ground are unlikely to remain as strict and clear as they will appear on maps. Maps may influence the direction and impact of change, but change, like flexibility, is an important part of customary practice or law. Like customary rules transmitted orally, or even like written customary or statutory laws, maps can be changed as practice, use, and values change, or as rights are transferred between generations or out of the hands of the original holders. Such change has been observed in Thailand's forests, where national forestry maps are changed yearly because people continue to live in and convert the forest, despite the neat management categories the government has repeatedly mapped out (Vandergest and Peluso, 1995). Moore (1986) has shown that both the codification of customary law and the superimposition of statutory legal systems on customary systems creates new windows of opportunity for people to take advantage of multiple systems of claiming resources. In addition to formalizing some past claims, counter-maps will set in motion new dynamics for making claims to the forest.

Not all local people will be happy with these changes. One change which a majority may regard as beneficial may be the transformation of more nature reserves to biosphere reserve or national park status, either alternative allowing more human use. However, some people may use the establishment of boundary lines between and within villages as a permanent indicator of private property rights. Detailed local maps which serve as alternatives or precursors to cadastral maps would increase flexible options of one person at the expense of another. Local maps will also transform blurry boundaries between forest villages to fixed ones, another potentially contentious issue (see, e.g., Peluso, 1992).

A second, related, issue has to do with the transformation of customary rights to forests. Dayaks have always made claims to territories, bounded by river systems, ridge lines, and other natural cues. However, such

territoriality has had more to do with rights to use resources within a particular territory than with the extent of territory and its exact boundary lines. Some land use categories might be structurally impossible to allocate as individual territory. For example, territorializing rights to mature fruit forests (*tembung*) would undoubtedly lead to conflict. In these social forests, multiple descent groups claim ancestral rights to fruit, resin, and trees. Virtually every tree has a set of owners which differs from the set claiming the next tree (Peluso, 1993, 1995). Thus, the degree of detail in mapping claims within the village becomes important, particularly in seeking ways to represent resource claims which cannot be territorialized.

In general, however, the use of maps requires the re-definition of customary forest rights which emphasized standing forest resources and products to an emphasis on the territory itself. The broad land use categories on the map delineate some of the territories that existed previously but were never formally recognized or drawn. However, by purposely making maps "empty" or "homogenous space," counter-mappers can reduce the potentially negative effects of such a territorialization. In other words, communities can retain the most internal flexibility in interpreting and changing land uses if individual rights within the village are not mapped. While broad land use categories such as protection forests, *tembung*, or agricultural areas may be mapped, the detailing of individual claims to trees or other resources within them could lead to local conflict. Leaving out the details of resource use within each category allows local people much more freedom to determine individual or descent group rights of access and to change management practices (Fox, pers. comm.).

In sum, although mapping has until now been peripheral to the politics of customary rights and forest access, its role is likely to increase. Mapping is a tool that speaks a language both national and international resource planners and managers can understand. Given the drive in Indonesia and elsewhere in Southeast Asia to zone land uses, such as production forests, agricultural lands, and areas of urban settlement, and parallel efforts to register private lands in cadastral surveys, the use of maps to recognize the bounds of community-controlled resources is an appropriate and timely tool. Indeed, communal or group-held properties are among the only categories of land that the government has never really mapped, nor does the government have concrete plans to do so. Because RePPT planners have stated the need to understand customary claims to the resources and lands mapped under their auspices, counter-mappers could incorporate government planners into their own plans.

The main purpose of the maps described here is to document and establish boundaries between forest villagers and external claimants, from the local point of view, and to re-claim for local people some of the

territory being appropriated by state and international forest mapping projects. Local notions of territoriality have had to change as extensive land-based projects have threatened them; they will change further with mapping. Yet, given the alternate futures – of not being on the map, as it were, being obscured from view and having local claims obscured, there almost seems to be no choice. Both in forest mapping and generally in Indonesia's natural resource politics, local people's views and claims have not been adequately recognized, and even more rarely accepted on their own terms. Some translation is needed into the terms of those who would claim them. Maps give local people the power to do so.

Acknowledgements

The author would like to thank Jeff Fox, John Kasbarian, Rod Neumann, Hugh Raffles, Rick Schroeder, and the anonymous reviewers for *Antipode* for their comments on this paper. My failure to take some of their good advice may have resulted in an inadequate analysis which in no way reflects upon them.

Notes

1. At the 1993 annual meetings of the Rural Sociological Society, virtually half the panels treated the integration of spatial relations into various paradigms of contemporary social theory.
2. This task remains open to the more powerful environmental groups, the NGO elites, and begs a detailed analysis of political configurations beyond the scope of this paper. Moreover, given the newness of the NGO movement in Indonesia, such an analysis would be inappropriate at this time.
3. Ironically, a state may be more prone to include local people's uses of forests the more transformatory these have been. Standing mature forest, for example, is most frequently dubbed "natural" and is thus subject to claim by the state, even when local people's manipulations may have led to the forests' current form. Such manipulations are invisible to the average forest planner or mapper (Peluso, 1993; Padoch, 1994).
4. Based on Article 33 of the 1945 Indonesian Constitution.
5. A convertible production forest is forest land which can be converted to smallholder or plantation agriculture after logging. Operations in normal production forests are to employ selective logging techniques and remain under forest cover.
6. Montaga (1993:135) also provides a table on this with slightly different statistics.
7. The 1987 figures for TGHK have been converted to a scale of 1:250,000 from the original TGHK maps drawn at 1:500,000 scale, in order to match the RePPT maps and recommended changes. The change of scale resulted in approximately 1% increase in area.
8. Honey is not produced by the tree, obviously, but in Kalimantan certain species of honeybees build their huge nests along the branches of certain tree species.
9. Illipe nut is an oil seed processed and sold as cocoa butter.
10. The indigenous or autochthonous peoples of Borneo (comprised of Indone-

sian Kalimantan, Malaysian Sarawak and Sabah, and Brunei) are collectively called Dayak and Punan/Penan. Though the Dayak peoples of Borneo have a wide variety of rituals, customs, social organization, and even resource management practices, they share some patterns of resource management. For the sake of consistency, my remarks here refer only to Dayak peoples, although they may be also relevant for some settled Punan and some rural Malays.

11. Some of these settlers have come as a result of planned government resettlement projects (transmigration), or contract labor schemes, others have come spontaneously, to take advantage of formal and informal employment opportunities.
12. Though not mentioned in the paper, it is assumed that the various products are subject to a variety of locally defined and sanctioned access rights.
13. For example, the Ford Foundation, The Worldwide Fund for Nature, and the East-West Center.
14. For example, the use of matrikel maps in Denmark beginning in 1844 facilitated the shift of the locus of rights from groups of people with use rights to land and resources to rights in the land itself. This focus changed other practices related to resource access rights. For example, *ejerial*, which meant "a community of villagers" [with certain use rights in land] became a concept attached to the land under discussion not the people with access rights to it (Kain and Baigent, 1992:91).

References

- Aberley, D. (1993) *Boundaries of Home: Mapping for Local Empowerment*. Gabriola Island, B.C.: New Society Publishers.
- Anderson, B. R. O'G. (1991, first printing 1983). *Imagined Communities: Reflections on the Origins and Spread of Nationalism*. London: Verso.
- Appell, G. N. (n.d.) Observational procedures for land tenure and kin groupings in the cognatic societies of Borneo. Unpublished manuscript.
- Barber, C. V. (1989) "The State, the Environment, and Development: The Genesis and Transformation of Social Forest Policy in New Order Indonesia." Unpublished PhD dissertation, University of California, Berkeley.
- Buisseret, D. (Ed.) (1992) *Monarchs, Ministers, and Maps: The Emergence of Cartography as a Tool of Government in Early Modern Europe*. Chicago: University of Chicago Press.
- Colfer, C. (1983) Change and indigenous agroforestry in East Kalimantan. *Borneo Research Bulletin* 15: 3-20, 70-86.
- Djadjadiningrat, S. (1990) *Kualitas Lingkungan Indonesia* 1990. Jakarta: Kantor Menteri Negara.
- Fischer, A. (1994) Power mapping: New ways of creating maps help people protect their landscapes. *Utne Reader* 65: 32-35.
- Fox, J. (1990) Sketch mapping as a diagnostic tool in forest management. In Mark Poffenberger (Ed.) *Keepers of the Forest: Land Management Alternatives for Southeast Asia*. Westport: Kumarian Press 119-133.
- Giddens, A. (1984) *The Constitution of Society*. Berkeley: University of California Press.
- Girof, P. and B. Nietschmann (1993) The geopolitics and ecopolitics of the Rio San Juan. *Research and Exploration* 8: 52-63.
- Government of Indonesia (GOI) (n.d.) Regional Physical Planning Programme for Transmigration (RPP/Prot). Jakarta: ODA and Departemen Transmigrasi.
- Gregory, D. and J. Urry (1985) *Social Relations and Spatial Structures*. New York: St. Martin's Press.
- Harahap (1991) Pemanfaatan hutan dalam kesejahteraan masyarakat. Jakarta: Paper presented at Seminar on Economic Democracy in the Forestry Sector, WALHI.
- Harley, J. B. (1988) Maps, knowledge, and power. In D. Cosgrove and S. Daniels (Eds.) *The Iconography of Landscape*. New York: Cambridge University Press, pp. 277-312.
- Harley, J. B. (1989) Deconstructing the map. *Cartographica* 26: 1-20.
- Harley, J. B. (1992) *History of Cartography*. Vol. 1. Chicago: University of Chicago Press.
- Harvey, D. (1989) *The Condition of Postmodernity: An Enquiry Into the Origins of Cultural Change*. Cambridge, MA: Basil Blackwell.
- Hobsbawm, E. and T. Ranger (Eds.) (1983) *The Invention of Tradition*. Cambridge: Cambridge University Press.
- Holleman, J. F. (Ed.). 1981. *Van Vollenhoven on Indonesian Adat Law: Selections from "Het Adatrecht van Nederlandisch-Indie Vol. 1, 1918."* The Hague: Martinus Nijhoff.
- Jessup, T. (1983) Why do shifting cultivators move? *Borneo Research Bulletin* 13: 16-32.
- Kain, R. J. P. and E. Baigent (1992) *The Cadastral Map in the Service of the State: A History of Property Mapping*. Chicago: University of Chicago Press.
- Kompas (1993) Hutan Adat Jelmu Sibak Dijadikan HTI Trans. 18 September: 8. Jakarta.
- LeFebvre, H. (1991) *The Production of Space* (trans. D. Nicholson-Smith). Oxford: Blackwell.
- Lev, D. (1985) Colonial law and the genesis of the Indonesian State. *Indonesia* No., 40.
- Mackie, C. (1986) "Disturbance and Succession Resulting from Shifting Cultivation in an Upland Rainforest in Indonesian Borneo." Unpublished PhD dissertation, Rutgers University.
- Manning, C. (1972) The timber boom in East Kalimantan. *Bulletin of Indonesian Economic Studies* 7: 30-61.
- Menzies, N. K. (1992) Strategies of inclusion and exclusion in China's forest management. *Modern Asian Studies*. 26: 719-733.
- Momberg, F. (1994) Participatory Tools for Community Forest Profiling and Zonation of Conservation Areas: Experiences from the Kayang-Mentarang Nature Reserve, East Kalimantan, Indonesia. Paper presented at the Borneo Research Council Third Biennial International Conference, Pentavank, July 1-14.
- Montaga, S. (1992) Toward community-based forestry and recognition of adat property rights in the Outer Islands of Indonesia. In J. Fox (Ed.) *Legal Frameworks for Forest Management in Asia: Case Studies of Community/State Relations*. Honolulu: East-West Center Occasional Papers of the Program on Environment, pp. 131-150.
- Moore, S. F. (1986) *Social Facts and Fabrications: "Customary" Law on Kilimanjaro, 1880-1980*. Cambridge: Cambridge University Press.
- Orlove, B. S. (1989) "Maps of Lake Titicaca: The Politics of Representation in Encounters between Peasants and the State in Peru." Unpublished manuscript.
- Padoch, C. (1994) The woodlands of Tac: Traditional forest management in Kalimantan. In W. Bentley (Ed.) *Forest Resources and Wood-Based Biomass Energy*

- as *Rural Development Assets*. New Delhi: Oxford and IBH Publishing Co. Ltd. 307-314.
- Peluso, N. L. (1992) *Rich Forests, Poor People: Resource Control and Resistance in Java*. Berkeley: University of California Press.
- Peluso, N. L. (1992) The ironwood problem: (Mis-)management and development of an extractive rainforest product. *Conservation Biology* 6: 210-219.
- Peluso, N. L. (1993) Coercing conservation: The politics of state resource control. *Global Environmental Change* 4(2): 199-217.
- Peluso, N. L. (1994) Fruit trees and family trees: property rights, ethics of access, and environmental change in West Kalimantan. Under revision for *Comparative Studies in Society and History*.
- Peluso, N. L. and C. Padoch (in press) Changing resource rights in managed forests of West Kalimantan. In C. Padoch and N. L. Peluso (Eds.) *Borneo in Transition: People, Forests, Conservation, and Development*. Kuala Lumpur: Oxford University Press.
- Poffenberger, M. (1990) *Keepers of the Forest: Land Management Alternatives for Southeast Asia*. Westport: Kumarian Press.
- Posey, D. (1985) "The Kayapo Indians and indigenous forest management. *Human Ecology*.
- Potter, L. (1995) Forest degradation, deforestation, and reforestation in Kalimantan: Towards a sustainable land use? In C. Padoch and N. L. Peluso (Eds.) *Borneo in Transition: People, Forests, Conservation, and Development*. Kuala Lumpur: Oxford University Press.
- Pramono, H. (1991) A Brief Review of Forest Land Use and Deforestation in Indonesia. Jakarta: Unpublished draft report to WALHI.
- Sack, R. D. (1983) *Human Territoriality: Its Theory and History*. Cambridge: Cambridge University Press.
- Sirait, M., S. Prasodjo, N. Podger, A. Flavell, and J. Fox (1994) Mapping customary land in East Kalimantan, Indonesia. *Ambio* 23 (7): 411-17.
- Smith, N. (1984). *Uneven Development: Nature, Capital, and the Production of Space*. Oxford: Basil Blackwell.
- Soja, E. W. (1989) *Postmodern Geographies: The Reassertion of Space in Critical Social Theory*. New York: Verso.
- Vandergest, P. and N. L. Peluso (1995) Territorialization and the Thai State. *Theory and Society* (in press).
- Weinstock, J. A. (1979) "Land tenure practices of the swidden cultivators of Borneo." Unpublished master's thesis, Cornell University.
- Wood, D. (1992) *The Power of Maps*. New York: Guilford Press.
- Woodward, D. (1989) Representations of the world. In R. F. Abler, M. G. Marcus, and J. M. Olson (Eds.) *Geography's Inner Worlds*. Newark: Rutgers University Press.
- Zerner, C. (1990) *Legal Options for the Indonesian Forestry Sector*. Jakarta, Indonesia: United Nations Food and Agriculture Organization.

C. Bibliography

This section provides a list of annotated/abstracted references divided into two parts. The first section lists 21 references that have been singled out as being of particular interest and relevance to resource tenure issues and CBNRM in southeast Asia. The second section (separated by a horizontal double line) includes a combination of annotated and non-annotated references that examines how resource tenure issues from around the world can affect CBNRM interventions. In most cases the annotations are the abstracts provided by the author or publisher.

1. Agarwal, B. 1994. **Gender and Command Over Property: A Critical Gap in Economic Analysis and Policy in South Asia.** World Development 22(10):1455-1478.
2. Begossi, A. 1995. **Fishing Spots and Sea Tenure: Incipient Forms of Local Management in Atlantic Forest Communities.** Human Ecology 23(3):387-406.

Abstract: Recent work has dealt with the local management of aquatic resources as an alternative to Hardin's (1968) *A tragedy of the commons*. In communities with no formal management of resources, informal ownership of fishing spots or conflicts with outside competitors may determine the basis for future local management. In this study, the author analyzes the use of aquatic resources by five fishing communities on the Atlantic forest coast of southeast Brazil: Buzios island, Paruba, and Picinguaba in Sao Paulo State, and Jaguanum and Itacuruca Islands at Sepetinba Bay in Rio de Janeiro State. Informal ownership of fishing spots, used for set gillnet fishing, is regulated by kin ties at Buzios Island. The artisanal fishers of Septiba Bay, especially those from Jaguanum Island, have a conflict with bay intruders, such as shrimp and herring trawlers. Two coastal communities, Paruba and Picinguaba, have conflicts with fishing regulations from a State Park created in 1977. The transformation of populated areas of the Atlantic forest to extractive reserves might be a way to avoid conflicts with intruders and with governmental agencies, and to involve local populations in management. Kinship rules at Buzios Island and the territorial behaviour of fishers at Septiba Bay may form the basis for local organization.

3. Bailey, C. and C. Zerner, 1992. **Community-based Fisheries Management Institutions in Indonesia**. Marine Anthropological Studies (MAST) 5(1):1-17.

Comment: This article is a good overview of marine resource tenure in Indonesia, with the focus more on Eastern Indonesia where these institutions are more common. Recommended for researchers working in marine contexts.

4. Berry, S. 1989. **Social Institutions and Access to Resources**. Africa 59(1):41-55.

Abstract: Using the example of change in African agriculture and production, Berry describes some of the strategies farmers employ in order to cope with crisis, enhance livelihoods, and increase the range of productive assets available to them. Berry asserts that farmers' ability to fashion livelihoods in times of great uncertainty is dependent upon their ability to access productive resources, control the use of these resources and utilize them effectively. Access to resources is mediated by material wealth and market transactions, but it is also influenced by a given farmer's ability to participate in a range of social institutions. This paper examines how the proliferation of social institutions as channels of access to productive resources has impacted upon agricultural production, and how these channels have been affected by the patterns of resource use by farmers. A secondary theme examines the issues of political instability, economic decline, environmental degradation and how these trends have impacted agriculture and altered the processes that shape resource access and use.

Comment: Berry's argument that access to resources is tied to participation in social institutions has been very influential in resource tenure studies. This article is highly recommended for researchers who want to read about resource tenure in more depth.

5. Chambers, R. and Melissa Leach, 1989. **Trees as Savings and Security for the Rural Poor**. World Development 17(3):329-342.

Abstract: Professionals have rarely seen trees as savings banks for poor people. But while trees and their products have become more valuable and easier to market, many poor people have become more vulnerable as contingencies cost more and traditional support weakens. Consequently, trees have increasing importance and potential as savings and security for the poor, and for use to meet contingencies. For savings and security, trees compare quite well with jewelry, large stock, small stock, land, and bank deposits. Disadvantages of trees can include insecure or unclear rights, restrictions on cutting and selling when needed, and problems with marketing; but common advantages include cheap and easy establishment, rapid appreciation in value, divisibility to meet needs closely, and regeneration after cutting. More empirical studies are needed on the use and potential of trees as poor people's savings banks. The policy implications of present evidence and analysis include tree reform, improved marketing and prices, and above all investing poor people with secure and full

ownership of trees, with rights to harvest, cut and sell similar to the withdrawal rights of depositors in savings banks.

6. Fortmann, L. 1985. **The Tree Tenure Factor in Agroforestry With Particular Reference to Africa.** *Agroforestry Systems* 2(4):229-251.

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

Comment: This article is one of the earliest in the literature on resource tenure. It is important for introducing the notion of tree tenure as separate from land tenure, and for its argument that agro-forestry projects need to pay attention to local, informal tree tenure practices.

7. Horowitz, L.S. 1998. **Integrating Indigenous Resource Management with Wildlife Conservation: A Case Study of Batang Ai National Park, Sarawak, Malaysia.** *Human Ecology* 26(3):371-403.

Abstract: This paper examines the indigenous land and forest management systems of the community of seven Iban longhouses whose territories comprise the area of Batang Ai National park in Sarawak, Malaysia. It also discusses the integrated conservation and development program (ICDP) at the park. This project is attempting to work within the existing system of customary law to build on traditional legislative infrastructure and management practices, in order to enlist the cooperation of local people and their leaders, in implementing a new conservation strategy. In addition to reinforcing local authority, park planners recognize the need for local people to be given strong incentives to participate in co-management of the protected area. This paper argues that, despite a history of conflict with indigenous peoples, State Officials have in this instance demonstrated a willingness to work with local people and community leaders. At the same time, they are encouraging community development, helping people to find alternatives to activities that threaten the park's wildlife.

8. Ireson, C. 1991. **Women's Forest Work in Laos.** Society and Natural Resources 4:23-36.

Abstract: Forest work is a significant part of the contribution of Lao rural women to the household economy. Women's forest work was studied by interviewing 120 rural women farmers/gatherers in eight villages in one province in Central Laos. Women with access to old growth forest as well as second growth areas are more commercially oriented and are more likely to sell what they gather. Women's forest work, in all cases, contributes to the household economy and becomes even more important during poor crop years. It is suggested that women's forest work activities, along with other women's work activities, foster their informal influence in the household and village.

Comment: This article is one of the few published articles on Southeast Asia that we were able to find on women and access to forest products. It is important for the way it documents the importance of access to forest products for women in Laos, both for the household economy and for women's status. Further work along these lines in other mainland Southeast Asian countries is much needed.

9. Kosek, J. 1998. **Mapping Politics.**; and Marc Chapin. 1998. **Mapping and the Ownership of Information.** Common Property Resource Digest #45:4-9

Comment: These short essays comment on Jefferson Fox's paper reproduced in this reader, asking further questions about the proliferation of counter-mapping projects; the often unacknowledged involvement of NGOs in creating these conflicts; the problems of assuming that the goals of indigenous peoples are always aligned with those of conservationists; the ownership of the information produced through community mapping; and the privileging of Cartesian-Newtonian ("Western") concepts of space implicit in counter-mapping.

10. McCulloch, A.K., Meinzen-Dick, R. and P. Hazell, 1998. **Property Rights, Collective Action and Technologies for Natural Resource Management: A Conceptual Framework.** SP-PRCA Working Paper #1, CGIAR System-wide Program on Property Rights and Collective Action. Washington D.C.: International Food Policy Research Institute.

Abstract: This paper explores how institutions of property rights and collective action play a particularly important role in the application of technologies for agriculture and natural resource management. Those technologies with long time frames tend to require tenure security to provide sufficient incentives to adopt, while those that operate on a large spatial scale will require collective action to coordinate, either across individual private property or in common property regimes. In contrast to many crop technologies like high-yielding variety seeds and fertilizers, natural resource

management technologies like agroforestry, watershed management, irrigation, or fisheries tend to embody greater and more varying temporal and spatial dimensions. Whereas the literature addressing constraints and enabling factors for rural technology adoption have largely focused on their direct effects on crop technologies, the conceptual framework presented here shows how property rights and collective action interact with many other constraints to technology development (such as wealth, information, risk, or labor availability). The paper further explores how the structures of property rights and collective action shape the efficiency, equity and environmental sustainability of technological outcomes, thereby enriching our understanding of different technologies' contributions to poverty alleviation.

11. Meinzen-Dick, R.S., Brown, L.R., Feldstein, H.S. and A.R. Quisumbing, 1997. **Gender, Property Rights, and Natural Resources.** *World Development* 25(8):1303-1315.

Abstract: Attention to gender differences in property rights can improve the outcomes of natural resource management policies and projects in terms of efficiency, environmental sustainability, equity, and empowerment of resource users. Although it is impossible to generalize across cultures and resources, it is important to identify the nature of rights to land, trees and water held by women and men, and how they are acquired and transmitted from one user to another. The paper particularly examines how the shift from customary tenure systems to private property - in land, trees, and water - has affected women, the effect of gender differences in property on collective action, and the implications for project design.

12. Peluso, N.L. and C. Padoch, 1996. **Changing Resource Rights in Managed Forests of West Kalimantan.** In: Peluso, N.L. and C. Padoch, eds. *Borneo in Transition: People, Forests, Conservation and Development.* New York: Oxford University Press.

Abstract: This chapter explores how the institutions and rights that govern access to the resources in the managed forests of West Kalimantan can change as a result of increasing commercialization. Using two village level case studies, the authors show how access to forest resources is managed by a complex and changing set of property relations that can vary from household to household, even within the same village. The authors suggest that recognizing the degree to which the indigenous people of West Kalimantan manage the forests, raises many serious questions about property rights, claims, and the regulation of practices. These questions have important implications for understanding the ecology of managed forests and the complexity and unpredictability of indigenous resource management systems.

13. Prill-Brett, J. 1994. **Indigenous Land Rights and Legal Pluralism Among Philippine Highlanders.** Law and Society Review 28(3):687-697.

Abstract: Indigenous people in the Philippine Cordillera Region maintain legal pluralism by invoking several legal orders - customary laws, conflicting national laws, international laws, and principles of human rights - to assert claims to ancestral lands. Although the U.S. supreme court in 1909 held that Philippine lands had been occupied from time immemorial are presumed never to have been made public, the Spanish colonial Regalian doctrine, derived from the explorer Magellan's claim of all lands in the Archipelago for the Spanish crown, remains the theoretical bedrock on which Philippine national land laws rest. Land not covered by official documentation, such as highland areas occupied by indigenous groups who have not acquired legal titles, is considered part of the public domain. Recently, dam building projects, logging concessions and commercial farming in highland areas have spurred renewed efforts by indigenous groups to assert rights to ancestral lands threatened with flooding, deforestation and dispossession.

14. Ribot, Jesse C. 1998. **Theorizing Access: Forest Profits Along Senegal's Charcoal Commodity Chain** Development and Change Vol. 29: 307-341.

Comment: Ribot argues that simply giving local communities more property rights to forests is not sufficient for channeling more profits from forestry to local communities. Traders and other players continue to appropriate most of the profits through extra-legal mechanisms. He suggests that researchers use a "commodity chain" analysis to evaluate the distribution of benefits as a product is extracted, converted, exchanged, transported, distributed, and used. The article is highly recommended for researchers who are looking for techniques to analyze the political economic context of resource tenure.

15. Ribot, R. 1995. **From Exclusion to Participation: Turning Senegal's Forestry Policy Around?** World Development 23(9):1587-1599.

Comment: This paper reviews the turn in Senegal's forest policy to a more participatory approach, seemingly reversing a century of centralized forest policies which excluded Senegal's forest villagers from charcoal production and marketing. Ribot argues, however, that this new policy may not have equitable or beneficial effects without changing how local government works to make it more representative, and shifts more real decision-making to the local level. In other words, a reversal in forest policy will not be effective without broader changes enhancing local democracy.

16. Schurman, R.A. 1998. **Tuna Dreams: Resource Nationalism and the Pacific Islands' Tuna Industry**. *Development and Change* 29(1):107-136.

Abstract: The 1982 United Nations Law of the Sea was expected to lead to a drastic redistribution of income from the world's fisheries. This article explores the extent to which this happened by examining the Pacific Islands' tuna industry. The analysis shows that even though these developing countries gained legal jurisdiction over some of the largest tuna stocks in the world, they encountered tremendous obstacles when they attempted to convert those tenure rights into concrete economic gains. Notwithstanding their success in organizing and co-operating amongst themselves, the Pacific Island countries (PICs) were unable to compel the distant water fishing nations to pay them more than a nominal access fee. When the PICs tried instead to develop their own tuna industries, they were disadvantaged by being located at the raw material end of the commodity chain. This case study suggests that a change in property rights is only a starting point for achieving increased equity in a global natural resource industry, for not only do the new resource owners have to develop expertise in managing their property; they also need to develop a good understanding of the organization and operation of these natural resource industries.

17. Sirait, M., Prasodjo, S., Podger, N. Flavelle, A., and J. Fox, 1994. **Mapping Customary Land in East Kalimantan, Indonesia: A Tool for Forest Management**. *Ambio* 23(7):411-417.

Comment: This is a more detailed account of the WWF project summarized by Nancy Peluso in the article reproduced in this reader.

Abstract: Effective forest management requires balancing conservation and local economic-development objectives. This project demonstrated a method for mapping customary land-use systems using oral histories, sketch maps, and GPS and GIS methodologies. These maps can form the basis of talks for identifying customary forest tenure boundaries in order to assess how indigenous ways of organizing or allocating space might support or conflict with the objectives of forest protection, for evaluating different means of coordinating indigenous resource management systems with government instituted systems of management, and as a basis for formal legal recognition and protection of customary forest-tenure arrangements. The constraints on this process include the accuracy of the base maps, the abilities of social scientists and map-makers to accurately capture the complex relationships of traditional resource management systems on maps, and the political will of the parties involved for recognizing different forms of land rights.

18. Tacconni, L. 1997. **Property Rights and Participatory Biodiversity Conservation: Lessons from Malekula Island, Vanuatu**. *Land Use Policy* 14(2):151-161.

Abstract: The implementation of biologically-focused and/or legally-focused approaches to conservation has contributed to the cultural and socio-economic marginalization of

many people living within or close to protected areas (PAs). As a result, many PAs suffer from encroachment by the people living near them. The paper shows how the establishment of conservation initiatives may benefit from: (i) a participatory identification, assessment and establishment process that accounts for existing property rights, local people's needs and wants; and (ii) legislation that recognizes and strengthens customary property rights. The paper considers the lessons derived from experience on the island of Malekula, Vanuatu.

19. Watershed: People's Forum on Ecology. 1999. **Wild fisheries of the Mekong River Basin.**

Comment: Although not directly about resource tenure, this issue of Watershed takes up an often neglected dimension of resource tenure--that of river fisheries. The loss or transformation of inland fisheries resources is often the most important impact of large projects like dams on rural people. Because inland fisheries are not usually recorded as state-recognized and sanctioned property, these losses are often not accounted for in cost-benefit assessments of large projects.

Watershed is published three times a year by "by TERRA (Towards Ecological Recovery and Regional Alliance), an NGO located in Bangkok. For subscriptions, contact them by email (terraper@comnet.ksc.net.th). This publication carries many articles that are highly relevant to research on resource tenure in Southeast Asia.

20. Zerner, C. 1994. **Through a Green Lens: The Construction of Customary Environmental Law and Community in Indonesia's Maluku Islands.** Law and Society Review 28(5):1079-1122.

Comment: Zerner has an article in the IDRC reader on "Institutional Analysis" on the history of *sasi*. These articles are highly recommended for researchers working on marine resource tenure.

Abstract: In the Maluku Islands of Eastern Indonesia, a center of global diversity in coral reef systems and the historic center of trade in cloves and other spices, tenure practices known as *sasi* have flourished for at least a century. This article analyzes the changes in the ways that the Dutch colonial officials, Indonesian government officials, and environmental NGOs have interpreted Moluccan customary law and local institutions. Dutch colonial accounts of *sasi*, a generic name for a historic family of institutions, laws, and ritual practices that regulated access to field, reefs, and rivers, suggest that the *sasi* was a sympathetic, highly variable body of practices linked to religious beliefs and local cultural ideas of nature. During the past two decades, as international and national conservation discourse have proliferated and a movement has developed to support indigenous Indonesian cultural communities, Indonesian NGOs and the Ministry of the Environment have promoted, and largely created, images of *sasi* as an environmental institution and a body of customary law promoting sustainable development, conservation and social equity. The article focuses on how *sasi* has been continuously reinterpreted by a variety of actors, following the trajectory of changing institutional interests and images.

21. Zwartveen, M.Z. 1997. **Water: From Basic Need to Commodity: A Discussion on Gender and Water Rights in the Context of Irrigation.** *World Development* 25(8):1335-1349.

Abstract: This paper examines the implications of changing water policies for women's water rights and access to water in irrigation systems. With growing water scarcity and programs to increase the efficiency and water allocation and delivery, the allocation of water rights becomes critical. Although women often have informal means and mechanisms to obtain and secure access to water, in most systems studied there is no recognition of women's specific needs, especially for production, as opposed to domestic consumption. Current policies to privatize and devolve management of irrigation need to increase responsiveness to specific women's water needs and interests if they are to address efficiency as well as equity concerns.

1. Acharya, H.P. 1989. **Jirel Property Arrangements and the Management of Forest and Pasture Resources in Highland Nepal.** *Development Anthropology Network* 7(6):16-25.
2. Adger, W.N., Kelly, M. Ninh, N.H. and N.C. Thanh 199. **Property Rights and the Social Incidence of Mangrove Conversion in Vietnam.** Working Paper, Center for Social and Economic Research on the Global Environment GEC 97-21(-).
3. Agarwal, A. and E. Ostrom 1999. **Collective Action, Property Rights, and Devolution of Forest and Protected Area Management.** Unpublished Mimiograph. Washington, D.C: International Food Policy Research Institute. (www.ifpri.org)

Abstract: This paper aims to accomplish two tasks: One, it presents a framework to help analyze the devolution of the use, management and governance of resources. It does so by bringing together several strands of work on institutional analysis and property rights, and building on theories of collective action. These writings are highly relevant to our understanding of governance and devolution, but their relationship to devolution and governance requires closer examination than it has previously received. Two, the paper provides empirical evidence from two case studies on devolution of forest use from India and Nepal to illustrate and examine the offered framework. The devolution of forest use in Kumaon in India and efforts to involve local people in the management of protected areas in the Terei of Nepal form the two contrasting studies

of the origins and implementation of devolution. Studying these contrasting cases enables us to examine the propositions we advance about the relationships between the characteristics of devolutionary initiatives and the likelihood of an initiative being implemented successfully, and resource-related outcomes.

4. Ahmed, J. and F. Mahmood, 1999. **Changing Perspectives on Forest Policy: Pakistan Country Study**. Forestry and Land Use Programme. Sustainable Forest Management Series #1. London: International Institute for Environment and Development.

Abstract: This report traces the story of how the policy debate has been opened up in Pakistan, principally through the experience with participatory forestry projects and conservation strategies. Legal changes have been made to allow communities to play their part in joint forest management, reinforcing a trend away from governmental control alone and towards reinstating community mechanisms and rules. Building on an identification of what works well in Pakistan, recommendations are made for further improvements to the policy process and for the installation of key policy which will help the sustainability of forest management and optimize stakeholder benefits.

5. Ahmed, M. and T.S. Tana 1995. **Management of Freshwater Capture Fisheries of Cambodia: Issues and Approaches**. A paper presented at "Reinventing the Commons", the 5th annual conference of the International Association for the Study of Common Property, May 24-28. Bodoë, Norway. IASCAP: Indiana University. (See IASCP website for details. Address can be found in Section E of this volume.)
6. Alexander, P. 1982. **Sri Lankan Fishermen - Rural Capitalism and Peasant Society**. Canberra: Australian National University.
7. Amarasinghe, O. 1989. **Technical Change, Transformation of Risks and Patronage Relations in a Fishing Community of South Sri Lanka**. *Development and Change*. (20):4:701-733.
8. Baines, G.B.K. 1989. **Traditional Resource Management in the Melanesian South Pacific: A Development Dilemma**. In: Berkes, F. ed., *Common Property Resources: Ecology and Community-Based Sustainable Development*. London: Belhaven Press.
9. Bakang, J.A. and C.J. Garforth 1998. **Property Rights and Renewable Natural Resources Degradation in North-Western Ghana**. *Journal of International Development* 10:501-514.

Abstract: Using a case study approach to determine whether any particular resource rights regime and/or the level of security of land tenure are responsible for renewable

natural resources (RNR) degradation, this paper argues that the continued use of irrelevant “Western” concepts to describe the dynamics of traditional land tenure systems among the Dagaaba inhabitants of the region obscures important RNR management problems associated with the dynamic ecology of semi-arid environment with which the resource users have to cope. Institutional recognition and support for the traditional land tenure system is advocated.

10. Baker, D.C. 1992. **Resource Conflict and the Structuring of Property Rights.** *Environments* 21(1):35-44.

Abstract: If planning is to contribute to a sustainable future and address the basis for competing demands on resources, an alteration in the structure of property rights and the use of land and water resources is required. Planning is presently based on the non-attenuated structure of property rights that emphasizes private property and the rights of individual property owners. Often, individual resource uses such as logging or mining have detrimental effects on other user groups as a result of poorly defined regulations and enforcement. In order to address resource use conflicts, planning is an activity that must recognize the interdependence of resources and enforce a system of rights that acknowledges this relationship. A non attenuated structure of property rights guided by market forces is inadequate to resolve resource use conflict in today's society. A restructuring of rights through both procedural and substantive means is necessary to meet the increasing competition for resource uses [edited].

11. Barrow, E. 1990. **Usufruct Rights to Trees: The Role of Ekwar in Dryland Turkana, Kenya.** *Human Ecology* 18(2):163-177.

Abstract: Usufruct rights to trees (Ekwar) in the Turkana silvo-pastoral system are an important aspect of natural resource management, particularly in the drier central parts of Kenya. Originating from a participatory forestry extension program, a survey was carried out that showed the extent and duration, often in excess of one generation, of occupancy of a person's Ekwar. Such rights center around the dry season fodder resources, especially of *Acacia tortillas*. However they are not definite and are linked to risk-spreading by flexibility in livestock management and the need that they be maintained through efficient usage and social linkages. Hitherto, such natural resource management systems have all but been ignored in the development process in favor of the “tragedy of the commons” paradigm. Likewise, pastoral development has tended to emphasize range and water, while trees are not given the attention they deserve. This endangers the resilience of the system, and it is therefore important that development works with and not against such environmentally-sound practices to try to make them more sustainable in the long term.

12. Begossi, A. 1998. **Property Rights for Fisheries at Different Scales: Applications for Conservation in Brazil.** *Fisheries Research* 34(3):269-2678.

13. Berry, S. 1997. **Tomatoes, Land and Hearsay: Property and History in Asante in the Time of Structural Adjustment.** World Development 25(8):1225-1243.

Abstract: After a decade of advocating market-based solutions to poverty and underdevelopment in sub-Saharan Africa, policy analysts have begun to reexamine the actual and potential role of African states and institutions in promoting sustainable development. While stressing the importance of flexibility, in policies and institutions, much of this debate rests on ahistorical approaches to understanding African institutions which portray them as inflexible and fragile, beleaguered by economic and political change rather than contributing to it. After reviewing some of the assumptions which inform current debates, this essay argues for a more processual approach, which takes account of the negotiability and ambiguity of many institutional arrangements, drawing on a case study of recent changes in land rights and agricultural practices in a rural community in Ghana.

14. Brosius, J.P., Lowenhaupt Tsing, A. and C. Zerner, 1998. **Representing Communities: Histories and Politics of Community-based Natural Resource Management.** Society and Natural Resources 11(2):157-168.

Abstract: Recent years have witnessed the emergence of a loosely woven transnational movement, based particularly on advocacy by non-governmental organizations working with local groups and communities, on the one hand, and national and transnational organizations, on the other, to build and extend new versions of environmental and social advocacy that link social justice and environmental management agendas. One of the most significant developments has been the promotion of community-based natural resource management programs and policies. However, the success of disseminating this paradigm has raised new challenges, as concepts of community, territory, conservation, and indigenous are worked into politically varied plans and programs in disparate sites. We outline a series of themes, questions, and concerns that we believe should be addressed both in the work of scholars engaged in analyzing this emergent agenda, and in the efforts of advocates and donor institutions who are engaged in designing and implementing such programs.

Comment: This article is available in Volume 2 of this series of reader ("Community-Based Natural Resource Management").

15. Bromley, D.W. 1992. **Property Rights as Authority Systems: The Role of Rules in Resource Management.** In: Nemetz, P.N. ed. Emerging Issues in Forest Policy. Vancouver: University of British Columbia Press.
16. Bruce, J. 1989. **Community Forestry: Rapid Appraisal of Tree and Land Tenure.** Rome: Food and Agricultural Organization of the United Nations.

17. Bruce, J., Fortmann, L. and C. Nhira, 1993. **Tenures in Transition, Tenures in Conflict: Examples from the Zimbabwean Social Forest.** *Rural Sociology* 58(4):626-642.

Abstract: The landscapes of rural communities are commonly divided into areas in which distinctive resource uses are practiced and for which there exist particular types of property rights. Such tenure niches for different resources may overlap where those resources themselves occupy the same space (e.g. land and trees). Further, competing legal and utilization systems (e.g. national and local) may place the same resource in different incompatible tenure niches. Conflict may involve overlapping tenure niches. Co-management by conflicting rights-holders may offer a solution.

18. Carrier, James G. 1987. **Marine Tenure and Conservation in Papua New Guinea.** In: McCay, B. and James Acheson, F. eds. *The Question of the Commons: The Culture and Ecology of Communal Resources.* Tucson: University of Arizona Press.

19. Christensen, S.R. and A. Rabibhadana, 1994. **Exit, Voice, and the Depletion of Open Access Resources: The Political Bases of Property Rights in Thailand.** *Law and Society Review* 28(3):639-655.

Abstract: The authors argue that the depletion of the open land frontier in Thailand has not led to the development of a strong central state, even though it has led to demands for innovations in the formal-legal order governing access to land. Institutional factors preventing the state from providing formal rule enforcement for the population combined with the lack of a landed aristocracy have maintained the discrepancy between legal rules and customary practices that prevailed when an open land frontier allowed people to avoid conflict by moving away. Since the mid-1980s when the Royal Forestry department drafted a new policy to promote commercial tree plantations, conflicts over forest reserves have increased, centering on the commercial tree plantations, on squatters who refuse to leave the reserves, and on the preservation and management of so-called community forests.

20. Davis, A. and C. Bailey, 1996. **Common in Custom, Uncommon in Advantage: Common Property, Local Elites and Alternative Approaches to Fisheries Management.** *Society and Natural Resources* 9(3):251-265.

Abstract: Fisheries social research has attracted increasing attention in recent debates concerning alternative approaches in the design of fisheries management systems. This essay examines case study and fisheries social research literature with a view to highlighting conceptual-analytical strengths, shortcomings and lessons with respect to management concerns. It is argued that effective and sustainable management

regimes require that central consideration be given the principles of social justice and distributional equity. Approaching these goals, in turn, requires that research and management design attend to issues such as local-level social structures, gender/ethnic relations, and the distribution of socioeconomic power and material benefits.

21. Desmond, S. 1993. **Fishing, Hunting and Gathering Rights of Aboriginal Peoples in Australia (Indigenous Peoples: Issues for the Nineties).**

University of New South Wales Law Journal 16(Winter):97-160.

22. Durrenberger, E. Paul and G. Palsson, 1987. **Ownership at Sea: Fishing Territories and Access to Sea Resources.** American Ethnologist 14(-):508-522.

Abstract: By showing that small scale fishermen practice a number of forms of self-regulation, among them, some that many have referred to as 'property' at sea, anthropologists have challenged the assumptions of the 'tragedy of the commons' model - that unregulated harvesting of a common property resource is the cause of depletion of sea resources. Some have been inspired by ecological models of territoriality developed to explain the behavior of human foragers. We argue that the rules of access to sea resources can only be understood in the context of the total socio-economic system of which they form a part, including its land-based component. We also suggest that while the concept of ownership does apply to some forms of sea tenure, the extension of the concept to include informal rules of access is obfuscatory.

23. Ewers-Anderson, K. 1995. **Institutional Flaws of Collective Forest Management.** Ambio 24(6):349-353.

Abstract: This article examines the institutional development within the afforestation of village revenue lands in India as well as institutions set up for management of existing forests. These institutions are termed collective or joint forest management committees, indicating a joint government-village arrangement for forest protection. However, it is often unclear or skewed who has which rights and to what. The present article argues for a careful analysis of the *kinds* of rights, of the *categories* of rightholders as well as the biophysical character of the resource itself. The degree of the sociopolitical overlap between new induced institutions and the existing ones of local government such as the village *panchayat* is counterproductive. Another critical issue is the match between the institutional set-up and the biophysical characteristics of the resource itself. Both issues are examined in this article.

24. Fingleton, J.S. 1993. **Resolving Conflicts Between Custom and Official Forestry Law in the Southwestern Pacific.** Unasylva 44(-).

25. Firmin-Sellers, K. and P. Sellers, 1999. **Expected Failures and Unexpected Successes of Land Titling in Africa.** *World Development* 27(7):1115-1128.

26. Forbes, A.A. 1999. **Mapping Power: Disputing Claims to Kipat Lands in Northeastern Nepal.** *American Ethnologist* 26(1):114-138.

Abstract: Through a close reading of a land dispute in northeastern Nepal, the author examines broader shifts in local-national political relations as Nepal is transformed from a Kingdom to a nation-state. In addition to documenting the shift from a customary to a private system of tenure, this case raises broader questions about the relationship between identity, politics, and place, and the impact of globalization on these relations.

27. Fortmann, L. 1996. **Bonanza! The Unasked Questions: Domestic Land Tenure Through International Lenses.** *Society and Natural Resources* 9(5):537-547.

Abstract: The lens of U.S. popular culture provided by country and western music and horror films reveals an understanding of property in the United States as complex, contested and fluid. International scholarship has analyzed property in similar terms. U.S. property relationships are explored here through the application of six themes found in the international literature: (1) property as social process, (2) customary tenure, (3) common property and community management of resources, (4) gender, (5) the complexity of tenancy relationships, and (6) land concentration.

28. Fortmann, L. 1987. **Tree Tenure: An Analytical Framework for Agroforestry Projects.** In: J.B. Raintree ed., *Land, Trees and Tenure*. University of Wisconsin, Madison: ICRAF Nairobi/Land Tenure Center.

29. Fortmann, L. and J. Bruce, eds. 1988. **Whose Trees? Proprietary Dimensions of Forestry.** Westview Press: Boulder.

30. Fortmann, L. and J. Riddell, 1985. **Trees and Tenure: An Annotated Bibliography for Agroforesters and Others.** Land Tenure Center. Madison: University of Wisconsin.

31. Freudenberger, K.S. 1994. **Tree and Land Tenure: Rapid Appraisal Tools - A Community Forestry Field Manual.** Rome: Food and Agriculture Organization of the United Nations.

32. Graham, T. and N. Idechong, 1998. **Reconciling Customary and Constitutional Law: Managing Marine Resources in Palau, Micronesia.** *Ocean and Coastal Management* 40(-):143-164.

33. Grima, A.P.L. and F. Berkes 1989. **Natural Resources: Access, Rights-to-use and Management.** In: Berkes, F. ed., *Common Property Resources*. London: Bellhaven Press.

34. Goheen, M. 1992. **Chiefs, Sub-chiefs and Local Control: Negotiations Over Land, Struggles Over Meaning.** *Africa* 62(3):389-412.

Abstract: Control over and access to land in Nso, Cameroon, has always depended on social identity. Control over land is a central symbol of leadership, both historically and today. Since the mid-1970s the Cameroonian state has instituted land ordinances and stressed privatization and land titling, while Nso ideology has continued to emphasize access to land as a right of Nso citizenship. The contradictions set up by these two differing views are exacerbated by disputes between the Fon Nso and his sub-chiefs, in this case the Fon-Nseh, over the right to control access to land. This prerogative, represented by the license to collect taxes for the people farming on the land, is further complicated by the relationship between the two rulers and their constituents to the national state. Each Fon reinvents tradition by reinterpreting a series of historical events to buttress his claim, the Fon Nso stressing rights in people and the Fon Nseh stressing rights in territory by virtue of his ritual obligation to the ancestors residing there. This article examines the complex relationships and the distribution of power among these traditional rulers, the new elites, and the national state.

35. Guieb, E.R. 1998. **Reasserting Indigenous Spaces in a Tagbanua Text: A Case of Dagat Ninuno (Ancestral Water Resource Claims) in the Philippines.** A paper presented at the Coastal Zone Canada 1998 International Conference. August 30th-Sept. 3rd. Victoria.

36. Hanna, S. and M. Munasinghe, eds. 1995. **Property Rights in a Social and Ecological Context: Part Two, Case Studies and Design Applications.** World Bank: Washington D.C.

37. Heasley, L. and J. Delehanty, 1995. **The Politics of Manure: Resource Tenure and the Agropastoral Economy in Southwestern Niger.** *Society and Natural Resources* 9(1):31-46.

Abstract: Disputes over manure in Southwestern Niger reveal broad strategies for natural resource control employed by farmers and herders in a transitional agropastoral economy, where resources are scarce, some traditional ethnic specializations are breaking down, and the dominant national political motif is devolution. Four themes emerge: (1) In agropastoral systems, manure offers entry to the general regional political ecology because it links the livestock and agricultural sides of the economy and the resource base. (2) Where groups vie for a limited resource, all take strategic

advantage of legitimizing claims, whether grounded in history, customary roles, debts owed, contracts drawn, officials known, old law, new law, or law deemed likely in the future. (3) Conflicts between claimants are heightened where the state seeks to empower customary authorities but cannot define them. (4) Devolving control over natural resources might best begin not by assigning power but by defining lines of conflict and the legitimizing logic behind conflicting claims.

38. Hviding, E. and G.B.K. Baines, 1992. **Fisheries Management in the Pacific: Tradition and the Challenges of Development in Marovo, Solomon Islands.** Discussion Paper. Geneva: United Nations Research Institute for Social Development.
39. Hyndman, D.C. 1993. **Customary Marine Tenure for Managing Aquatic Resources in Papua New Guinea.** A paper presented at "Common Property in Ecosystems Under Stress", the 4th annual conference of the International Association for the Study of Common Property, June 16-19. Manila, Philippines. IASCP: Indiana University. (See the IASCP website for details. Address can be found in Section E of this volume.)
40. Johnston, C. 1999. **Common Property, Political Economy and Environmental Conservation: Reflections on Rights Based Fishing in Southern Thailand.** [Forthcoming in: South East Asia Research, March 2000.]
41. Johnston, C. 1997. **Conflict and Change in an Open-Access Resource; An Analysis of Thailand's Coastal Fisheries.** Background report to the Royal Thai Marine Rehabilitation Plan. Bangkok: Thailand Development Research Institute.
42. Khare, A., Bathla, Palit, S., Sarin, M., and N.C. Saxena. 1999. **Joint Forest Management: Policy, Practice and Prospects: India Country Study.** Forestry and Land Use Programme. Sustainable Forest Management Series #3. London: International Institute for Environment and Development. [forthcoming]

Abstract: India's bold central policy dialogue for joint forest management has resulted in regeneration of considerable areas of forest, and is pulling forestry practices slowly towards the inclusion of more stakeholders. But, these successes are matched by concerns that the policy is being used as a mask by some forestry departments seeking to regain control of forests, whilst in others, serious local inequities are being exacerbated. This report describes the evolution of powers over forestry policy - the legacy of colonial forestry, the inertia of "fortress forestry" institutions, the favored forest industries and the protectionist agenda which seeks to lock away the forests from people's use. These powers need to be tackled openly and concertedly for the ideal of forest management and the potential of farm forestry to be fully realized.

43. Kurien, J. 1998. **Property Rights Resource Management and Governance: Crafting an Institutional Framework for Global Marine Fisheries.** Kerala: Center for Development Studies.
44. Levieil, D. and B.S. Orlove, 1990. **Local Control of Aquatic Resources: Community and Ecology in Lake Titicaca, Peru.** *American Ethnologist* 92(2):362-382.

Abstract: All 151 fishing communities in Lake Titicaca, Peru, maintain and defend communally controlled fishing territories. Environmental factors, particularly the slope of the lake bottom and the presence and abundance of aquatic vegetation, influence the distribution of three types of such territories, which differ in the area they cover and in the maximum depth of the water they contain. A cost-benefit model is employed to explain this spatial patterning. This study emphasizes the interaction between aquatic and terrestrial resources. It discusses the conflicts between the formal legal codes of the Peruvian state and the informal regulations of peasant communities. It argues for a refining of the terminology used to describe and analyze common property resources.

45. Liu, S., Carter M.R. and Y. Yao, 1998. **Dimensions and Diversity of Property Rights in Rural China: Dilemmas on the Road to Further Reform.** *World Development* 26(10):1789-1806.

Abstract: This paper contributes to the debate over land tenure in rural China by conceptualizing and measuring multiple dimensions of property rights in a way that elucidates the competing interests that are affected by the property rights regime. Utilizing a unique village-level data set, this paper argues that the regional and temporal variation in rural property rights signals a pattern in which decentralized institutional innovation occurs in response to the competing interests of the national state, of local authorities, and of present and possible future individual land users. Unlike the earlier debate concerning the household responsibility system, the current property rights dilemma is intrinsically more complex because the potential conflicts of interest between individuals, local collectives, and the state are greater. Resolution of that debate will ultimately require careful exploration of the reality and the substance of tradeoffs and competing interests that make further reform of rural property rights so difficult.

46. Malayang, B.S. 1991. **Rights and Exclusion in Tenure: Implications to Tenure Policies in the Philippines.** A paper presented at the 2nd annual conference of the International Association for the Study of Common Property, September 26-30. Winnipeg, Canada. IASCP: Indiana University. (See IASCP website for details. Address can be found in Section E of this volume.)

47. McCay, B.J. 1997. **Forms of Property Rights and the Impacts of Changing Ownership.** In: Halbrook, S.A. and K.W. Ward, eds. *Increasing Understanding of Public Problems and Policies*. Farm Foundation: Oak Brook, IL.
48. McKean, Margaret. 1992. **Management of Traditional Common Lands (Iriaichi) in Japan.** In: Bromley, D. et al., eds., *Making the Commons Work: Theory, Practice and Policy*. San Francisco: Institute for Contemporary Press.
49. Menzies, N. 1992. **Strategic Spaces: Exclusion and Inclusion in Wildland Policies in Late Imperial China.** *Modern Asian Studies* 26(4):719-733.
50. Mering Ngo, T.H.G. 1996. **A New Perspective on Property Rights: Examples from the Kayan of Kalimantan.** In: Peluso, N.L. and C. Padoch eds. *Borneo in Transition: People, Forests, Conservation and Development*. New York: Oxford University Press.

Abstract: This paper explores the relevance of *adat* property rights in Indonesia and how these rights have been misunderstood or ignored by development agencies, the Indonesia government and private sector interests. Using case studies from the Kayan of the Mendalam River of West Kalimantan, and the Kayan of Tering Lama, East Kalimantan, the paper illustrates how *adat* customary laws governing land and tree tenure is often in conflict with formal legal codes and regimes. The inability of the Indonesian authorities to reconcile the contradictions and ambiguities within law and policy, and to sensitize its agents to the importance of *adat* institutions, has led to significant conflict between local peoples, the Forestry Department and mining companies. The author suggests that the failure to recognize *adat* property rights can have a negative impact of development projects. The paper concludes with a proposal to employ mapping as a means to reduce conflict while clarifying *adat* property rights.

51. Neumann, R.P. 1997. **Forest Rights, Privileges and Prohibitions: Contextualizing State Forestry Policy in Colonial Tanganyika.** *Environment and History* 3(1):45-68.

Abstract: This paper analyzes the development of state management in Tanganyika and its effect on African access and use rights within the larger context of British colonial governance. It explores how the ideologies and interests represented by scientific forestry, the League of nations Mandate, indirect rule and the general process of African peasantization intersected in complex and contradictory ways to restructure African forest rights. Efforts to resolve contradictions resulted sometimes in the spatial segregation of Africans and Forest Department interests, sometimes in uneasy compromise, and, ultimately, in a steady erosion of peasant access to forest lands and resources.

52. Nickerson, D., ed. 1998. **Community-Based Fisheries Management in Phangnga Bay, Thailand**. Bangkok: Ministry of Agriculture and Cooperatives.
53. Oboler, R.S. 1996. **Whose Cows Are They Anyway?: Ideology and Behaviour in Nandi Cattle "Ownership" and Control**. *Human Ecology* 24(2):255-272.

Abstract: The system of rights in cattle among the Nandi of western Kenya is built on a paradox: wives' predominant rights in certain categories of cattle vs. a strong public ideology that assigns cattle control to men. Various Nandi categories of cattle and the structure of rights in them are described. Husbands' and wives' interests at times of conflict; the negotiation of such conflicts is explored through the analysis of several case studies. These studies show that it is possible, though not common, for wives to use traditional legal processes to counter husbands' herd management decisions. It is suggested that this possibility, and the potential loss of face it entails, explains why husbands rarely take actions contrary to wives' rights in livestock. Different rhetorical strategies of men and women talking about rights in cattle, and emphasis on different aspects of customary law are also discussed. The discussion is related to the emerging theory of "customary law" as the result of conflicts negotiated in the political context of colonialism. Literature on other African societies is reviewed, showing similar patterns of erosion of women's property rights and differing interpretations of customary rights from those formalized in customary law.

54. Olomola, A.S. 1998. **Nigerian Artisanal Fisheries**. *Society and Natural Resources* 11(2):121-135.

Abstract: The increasing dependence of fisheries as a source of livelihood in the maritime states of Nigeria has been associated with intensive management of available resources and an upsurge in the contestation of ownership and use rights. In Ondo and Rivers States, infringements on the rights of ownership and use and violation of resource management rules have been the major sources of conflict associated with the artisanal fisheries. It has been possible to resolve the emerging conflicts through non-adjudicatory approaches such as negotiation, mediation, and arbitration. In these approaches the organization of conflict resolution is informal and the operational rules are clear, reconciliatory, and easily comprehensible. The strength and resilience of the approaches lie in the cohesiveness of the social, kinship, linguistic, and cultural interconnections among owners and users of the fishing ground. Usually, the resolution of conflict is accomplished speedily and openly and the process is relatively inexpensive.

55. Ostrom, E. and E. Schlager, 1996. **The Formation of Property Rights**. In: Hanna, S., Folke, C. and K. Maler, eds., *Rights to Nature*. Washington D.C: Island Press.

56. Peluso, N.L. 1998. **Legal Pluralism and Legacies of 'Customary Rights' in Indonesia and Malaysian Borneo.** The Common Property Resource Digest #47:10-13.
57. Peluso, N.L. 1996. **Fruit Trees and Family Trees in an Anthropogenic Forest: Ethics of Access, Property Zones, and Environmental Change in Indonesia.** Comparative Studies in Society and History 38(3):510-548.
- Abstract:* In this essay the author examines how property and access conventions are transformed in West Kalimantan, Indonesia. Taking a process approach, the author demonstrates that although property rights and how the landscape is constituted by local users are often closely linked, transformations do not follow a linear pattern. The study examines the complex and unpredictable nature of environmental and social change and demonstrates the links between changing property rights, ethics of access, changes in landscape composition, and how they interact with exogenous forces such as changing market conditions and state sponsored interventions. Three main themes are developed: (1) how politics and discourse can change the nature of the landscape and affect access to resources; (2) how individual and corporate property rights and the ethics of access will change and fluctuate across space and over time; and (3), how changes in the 'ethics of access' have responded to exogenous forces and mitigated against potentially harmful consequences of privatization, individualization and the commodification of resources.
58. Peluso, N.L. 1992. **The Political Ecology of Resource Extraction and Extractive Reserves in East Kalimantan, Indonesia.** Development and Change 23(4):49-74.
59. Peluso, N.L. and C. Padoch, eds. 1996. **Borneo in Transition: People, Forests, Conservation and Development.** New York: Oxford University Press.
60. Peters, P. 1992. **Manoeuvres and Debates in the Interpretation of Land Rights in Botswana.** Africa 62(3):413-434.

Abstract: This article seeks to show how transformation in both practices and concepts are involved in the changing patterns of rights and use of grazing land in Botswana over the past five decades. "The symbolic struggle over.... legitimate naming" (in Bourdieu's words) is centrally involved in attempts both to change and to preserve patterns of rights in land. Analysis has to address the uses of multi-referential concepts by differently placed persons. Three situations where manoeuvres over meaning are central are examined here: the shift from a more to a less incorporative organization of resource use, the emergence of private ownership of wells and its implications for land

rights, and the practical and metaphorical use of fences in a situation of conflicting rights on a divided range.

61. Potkanski, T. and W. M. Adams, 1998. **Water Scarcity, Property Regimes and Irrigation Management in Sonjo, Tanzania.** The Journal of Development Studies 34(4):86-116.

Abstract: This article explores the dynamics of property rights in irrigation water in Sonjo, Tanzania. It analyzes an unsuccessful attempt by the ruling political group to change the institutional arrangements of water control, to better serve their private goals. This example shows that not all internal institutional innovations in the field of utilizing natural resources lead to increased efficiency of the system from the point of view of the whole community. We draw on New Institutional Economics (NIE) and Common Property Resource Management (CPRM) theory to analyze the way in which it was possible that those few within Sonjo society who are formally/nominally 'the owners' of water sought to privatize de facto collective use rights of all community members. We consider why this was done in some, but not all, Sonjo communities, and we describe the why this process eventually failed.

62. Pinkerton, E. 1992. **Translating Legal Rights into Management Practice: Overcoming Barriers to the Exercise of Co-management.** Human Organization 15(4):330-341.

Abstract: In many cases the management of certain common property natural resources has been successfully shared between government agencies and groups claiming co-management rights. This analysis adds to existing middle-range theoretical propositions about how such co-management arrangements develop, and specifically, how groups overcome barriers to co-management when their co-management rights are protected in law but resisted politically. The paper examines a range of strategies used successfully by a coalition of environmental groups and Indian tribes with rights to participate in fish and wildlife habitat protection in the state of Washington. Their struggle first to procure co-management agreements and then to have the agreements implemented has implications for the theory and practice of joint management of other common property resources, especially where multiple agencies and parties are involved.

63. Rajagukguk, E. 1994. **Law, Land, and the Natural Environment in the Kedungombo Greenbelt Area at the Central Javanese Village of Giliredjo.** Law and Society Review 28(3):623-629.

Abstract: After a dam was built in Central Java farmers who elected to move to higher ground rather than resettle in another region remain poor and practice agricultural techniques that promote soil erosion. Due to population pressure and lack of arable

land, displaced villagers are cultivating greenbelt areas and tidal lands around the reservoir, encouraged by the government, which granted them oral permission to do so in order to calm unrest generated by farmers' complaints over the meager monetary compensation they received for lands flooded by the dam. Although the government requires farmers to plant tree crops, villagers are also planting annual crops to meet daily food needs, thus promoting erosion and rapid silting of the reservoir.

64. Rocheleau, D. 1988. **Women, Trees and Tenure: Implications for Agroforestry.** In: Fortmann, L. and J. Bruce, eds. *Whose Trees? Proprietary Dimensions of Forestry*. Boulder: Westview Press.
65. Rocheleau, D. and L. Ross, 1995. **Trees as Tools, Trees as Text: Struggles Over Resources in Zambrana Chacuey, Dominican Republic.** *Antipode* 27(4):407-428.

Abstract: Writing from a political ecology perspective and drawing upon the work of feminist environmentalists and grassroots activists, this paper examines how multinational corporations, state agencies, NGOs and people's movements have embraced and manipulated 'green discourse' and made trees the "objects, sites, symbols and tools" of material and ideological struggle. Using a case study from the Dominican Republic, the paper illustrates how trees can be used as instruments of power and empowerment by a wide range of actors across the micro, meso and macro levels. The paper demonstrates how trees and forests have been used to fashion landscapes, livelihoods and tenure regimes, and how these phenomenon have changed as a result of the introduction of an exotic timber tree. The paper concludes with a review of the theoretical and practical implications for political ecology and forestry.

66. Rose, C. 1990. **Property as Storytelling: Perspectives from Game Theory, Narrative Theory, Feminist Theory.** *Yale Journal of Law and the Humanities* 2(1):37-57.
67. Ruddle, T.K. 1995. **When Do Property Rights Matter? Open Access, Informal Social Controls, and Deforestation in the Ecuadorian Amazon.** *Human Organization* 54(2):187-194.

Abstract: In recent years a number of analysts have argued that open access explains why people have destroyed so many tropical forests so rapidly. Under conditions of open access loggers and colonists clear forested land rapidly out of fear that others will extract valuable resources from these places before they will. This paper questions the magnitude of the open access effect. Ethnographic data from the Ecuadorian Amazon suggests that, in the absence of formally constituted property rights, informal social

controls limit access to the forests and indirectly limit rates of deforestation. Comparisons with land clearing in the Brazilian Amazon suggest that informal controls only retard deforestation in relatively stable frontier settings. The paper concludes with a discussion of the policy implications of these findings.

68. Ruddle, K. 1996. **Boundary Definition as a Basic Design Principle of Traditional Fishery Management Systems in the Pacific Islands.** *Geographische Zeitschrift* 8(2):94-102.
69. Ruddle, K. 1996. **Back to First 'Design Principles': The Issue of Clearly Defined Boundaries.** SPC Traditional Marine Resource Management and Knowledge System Information Bulletin 6(-):4-12.
70. Ruddle, K. 1995. **The Role of Validated Local Knowledge in the Restoration of Fishing Property Rights: The Example of the New Zealand Maori.** In: Hanna, S. and M. Munasinghe, eds. *Property Rights in a Social and Ecological Context: Part Two, Case Studies and Design Applications.* Washington D.C. World Bank.
71. Ruddle, K. 1989. **Solving the Common-Property Dilemma: Village Fisheries Rights in Japanese Coastal Waters.** In: Berkes, F., ed. *Common Property Resources: Ecology and Community-Based Sustainable Development.* London: Belhaven Press.
72. Ruddle, K. 1988. **The Organization of Traditional Inshore Fishery Management Systems in the Pacific.** In: Neher, P. et al., eds. *Rights Based Fishing.* Dordrecht: Kluwer Academic Publishers.
73. Ruddle, K. and R.E. Johannes, eds. 1985. **Traditional Marine Resource Management in the Pacific Basin: An Anthology.** Jakarta: UNESCO.
74. Sather, C. 1990. **Trees and Tree Tenure in Paku Iban Society: The Management of Secondary Forest Resources in a Long Established Iban Community.** *Borneo Review* 1(1):16-40.
75. Schlager, E. and E. Ostrom, 1993. **Property Rights Regimes and Coastal Fisheries: An Empirical Analysis.** In: Anderson, T.L. and R.T. Simmons, eds. *The Political Economy of Customs and Culture: Informal Solutions to the Commons Problem.* Lanham: Rowman & Littlefield.

76. Schoonmaker Freudenberger, M., Carney, J.A. and A.R. Lebbie, 1997. **Resiliency and Change in Common Property Regimes in West Africa: The Case of the *Tongo* in the Gambia, Guinea and Sierra Leone**. *Society and Natural Resources* 10(4):383-402.

Abstract: West African rural communities frequently create rules and conventions to define rights of access and conditions of use to natural resources of great use and exchange value. One such example, the *tongo*, is an oscillating common property regime that regulates seasonal access to vegetation and wildlife located within the village commons and on individually appropriated lands in many areas of the Gambia, Guinea, and Sierra Leone. This ensures that a particular resource, such as fruits from domesticated and wild trees or grasses used for thatch, reach full maturity before being harvested by the community at large. While it is often concluded that these institutional arrangements are declining, this article adopts a historical perspective in showing that these regimes are much more resilient and flexible than commonly assumed. The authors suggest that the *tongo* is a foundation for working with African indigenous knowledge and institutions to develop an alternative, yet distinctively African, approach to resource conservation.

77. Shams, N. and M. Ahmed, 1995. **Common and Private Property Linkages for Sustainable Livelihoods in Low-land Forest-Fishery-Farming Systems of Northwest Cambodia**. A paper presented at "Voices of the Commons" the 6th annual conference of the International Association for the Study of Common Property, June 5-8. Berkeley, California. IASCP: Indiana University. (See IASCP website for details. Address can be found in Section E of this volume.)

78. Sick, D. 1998. **Property, Power, and the Political Economy of Farming Households in Costa Rica**. *Human Ecology* 26(2):189-212.

Abstract: The relationship between the size of landholdings and household economic status is fairly clear, particularly in societies where agricultural exports dominate the economy. Less clear is the effect of differential access to and control of productive property within households and the ways in which it affects the economic opportunities of individual household members. This paper examines property holdings and inheritance patterns among coffee producing households in Costa Rica. It shows that while cultural norms regulating labor contributions do affect the balance of authority within households, de facto property rights can significantly enhance an individual's decision-making power both within households and between generationally-related households. Unless new opportunities arise, as population increases, coffee production expands, and lands become increasingly scarce, we shall likely see increased stratification both within households - as women inherit less land - and among households, as some sons inherit at the expense of other sons and daughters.

79. Stanley, D.L. 1998. **Explaining Persistent Conflict Among Resource Users: The Case of Honduran Mariculture.** *Society and Natural Resources* 11(3):267-278.

Abstract: Numerous examples of environmental degradation and conflict among resource users have arisen in areas impacted by mariculture. In particular, instances of mangrove deforestation, destruction of the bycatch fishery, and estuary water pollution are growing concerns. This article presents an in-depth case study of Honduran mariculture to explain the persistence of these conflicts among resource users. Different explanation for the persistence of externalities - based on the resource type, information problems, resource tenure, and the role of the state - are integrated in an analysis of three environmental conflicts. The article concludes that the link between tenure and environmental degradation is incomplete, and establishing an indirect relationship between users' actions and environmental quality is an important first task.

80. Sturgeon, J.C. 1997. **Claiming and Naming Resources on the Border of the State: Akha Strategies in China and Thailand.** *Asia Pacific Viewpoint* 38(2):131-144.

81. Suryanata, K. 1994. **Fruit Trees Under Contract: Tenure and Land-use Change in Upland Java.** *World Development* 22(10):1567-1578.

Abstract: The spread of fruit based agroforestry in Java attests to the proposition that market incentives enhance the adoption of tree planting in agroforestry. Commercialization, however, changes the social relations of production and creates unexpected land-use patterns. The case study examines the development of multiple tenures associated with the planting of high valued apple trees in a Javanese mountain village. New tenurial relations influenced agroforestry operators in implementing their cropping strategies. The findings question the assumptions of the independent ability of agroforestry operators to adopt a certain management style, in spite of possessing the technical knowledge.

82. Vandergeest, P. 1996. **Property Rights in Protected Areas: Obstacles to Community Involvement as a Solution in Thailand.** *Environmental Conservation* 23(3):259-268.

83. Vermillion, D.L. 1999. **Property Rights and Collective Action in the Devolution of Irrigation System Management.** A paper presented at the Workshop on Devolution of Natural Resource Management, Puerto Azul, Philippines. June 21-25. 1999. Available from CGIAR-System Wide Program on Property Rights and Collective Action, Washington D.C. (Website address can be found in Section E of this volume.)

Abstract: The purpose of this paper is to identify policy recommendations and research priorities which will lead to more effective efforts to devolve the management of irrigation systems from governments to water users associations. This paper focuses on the question, "what are the essential motivating factors which will invoke collective action among water users to ensure effective and sustainable management of irrigation systems after devolution?" We will see that the most important motivating factors are property rights, broadly defined, which provide security and incentives for farmers to invest in irrigation management. How devolution programs are structured and implemented can also shape farmer perceptions about related property rights, and hence, can have an important impact on collective action among water users.

84. Walters, J.S. 1994. **Property Rights and Participatory Coastal Management in the Philippines and Indonesia.** Coastal Management and Tropical Asia Newsletter 3(-):20-24.
85. Wattana S. 1999. **Fishing Communities in Southern Thailand: Changes and Local Responses.** A paper presented to the 7th International Conference on Thai Studies, Amsterdam - 4-7 July 1999.
86. Wiber, M.G. 1993. **Politics, Property and Law in the Philippines Uplands.** Waterloo: Wilfred Laurier University Press.
87. Wiber, M.G. 1991. **Levels of Property Rights, Levels of Law: A Case Study from the Northern Philippines.** *Man* 26(3):469-492.

Abstract: Among the upland Ibaloi of the northern Philippines, political and economic integration into the Philippine state has been informed by simplistic notions of local patterns of resource control and use. The view that minority tribal groups are 'communal' and the subsequent state efforts to privatize resource control have resulted in the emergence of multiple levels of property rights. These, in turn, are manipulated by individuals in their economic strategies, a process which enhances and reinforces legal pluralism. The result has been to reduce agricultural productivity and to increase the level of conflict among community members. This article discusses the Ibaloi example to demonstrate the importance of re-examining our key concepts and approaches to property systems in order to encompass factors of both structure and process.

D. Obtaining Documents Listed in the Bibliographies

IDRC Document Delivery Service

The IDRC library offers a document delivery service to all Centre-funded projects. Any project staff member may request, from the IDRC library, copies of journal articles or excerpts from books free of charge. The IDRC library will send these documents to the project via regular mail. Please note that whole books cannot be copied or loaned and only one copy of any journal article can be provided per project.

Procedure

Send a request via e-mail, fax or regular mail (address below) to Marjorie Whelan. The request must include a minimum of information in order to be processed.

For a Journal Article please include: Author, Title, Date, Journal Name, Volume, Issue and Pages.

For a Book Chapter, please include: Author, Title, Date, Publisher and Pages

As well, you will need to identify the name and number of your IDRC project and your institution. In order to simplify this process an order form has been attached below. You may wish to print this off and use it when ordering by fax or regular mail or complete it in electronic format and attach it to an e-mail message.

Please note that as an IDRC project recipient you are entitled to this service for any journal article or book chapter that you wish—not just those listed in the resource kit.

Using the form provided on the following page, please direct reference requests to:

Marjorie Whelan
Research Information Management Service (RIMS)
IDRC
PO Box 8500
Ottawa, ON
Canada K1G 3H9

Telephone: (613) 236-6163 ext 2257
Fax: (613) 238-7230
e-mail: mwhelan@idrc.ca (cc your message to cthompson@idrc.ca)

CBNRM Journal Article Request Form

Please use this form to indicate those journal articles and book chapters you would like to have IDRC copy and deliver to you. It may take up to 4 - 6 weeks for delivery from the date we receive your request.

Your Name: _____

Project Title/Number: _____

Institution: _____

Project Leader: _____

Mailing Address: _____

No.	Journal Article or Book Chapter (please include author, title, date, journal name, volume, issue and pages)

E. Websites and Electronic Information

This section presents selected websites related to resource tenure issues. The sites represent opportunities to liaise with research institutes, development practitioners, and other forums that can provide useful resources or insights into CBNRM.

Websites

1. The Africa Resources Trust/CAMPFIRE Collaborative Group (CCG)

http://www.wildnetafrica.co.za/bushcraft/articles/document_campfire.html

The Wildlife & Development Series is sponsored by the CCG and the International Institute for Environment and Development. The site includes an extensive list of internet publications on current issues and challenges relating to the implementation of Zimbabwe's famous CAMPFIRE (the Communal Areas Management Programme for Indigenous Resources) initiative. Academics, practitioners and the public alike, who have an interest in wildlife management, development and conservation, will be interested in this site and the articles featured here. A wide range of topics explores the linkages between resource tenure issues, legal pluralism, the political ecology of the CAMPFIRE initiative, gender issues, the theory of devolution, and practical, day to day challenges in the administration of this complex natural resource management project. Lessons learned are drawn out of the articles and policy recommendations are discussed. The site offers direct links to the CAMPFIRE homepage and wildnet Africa.

2. AMRC - Australian Mekong Resource Centre

<http://www.usyd.edu.au/su/geography/mekong/index.htm>

Established in 1997, the AMRC is a focal point and clearing house for information, data, thematic studies and policy research on environment and development issues in the Mekong Region. The centre consists of a wide network of interested researchers, policy makers, activists and the public. The goal of the AMRC is to foster a deeper understanding of the contemporary challenges confronting the Mekong region and to support development initiatives that "maintain the integrity, diversity and symbiosis of local livelihoods, cultures and ecosystems". The centre participates in research projects funded by governmental and non-governmental donors. Resources on the Mekong region are available through the AMRC and the centre maintains a Mekong Discussion Group. The AMRC homepage provides numerous links to other related sites and organizations working in the Mekong region.

For more information about the AMRC, contact Fiona Miller:

Australia Mekong Resource Center
Division of Geography, School of Geosciences
Rm. 464, Madsen Bldg., F09
University of Sydney
NSW 2006, Australia

Email: mekong@geopgrahpy.usyd.edu.au

2. CAPRi - System-Wide Initiative on Collective Action and Property Rights

<http://www.cgiar.org/capri/>

The CAPRi website is the gateway into the System-wide Program on Collective Action and Property Rights, a CGIAR (*Consultative Group on International Agriculture Research*) inter-centre initiative. The centre aims to collect and disseminate relevant resource materials from around the world and to assist a network of research institutes and centres of excellence in their efforts to address, in a coordinated manner, pressing issues related to agriculture and natural resource management challenges. To this end, CAPRi actively promotes interdisciplinary and “comparative research on the role played by property and collective action institutions in shaping the efficiency, sustainability and equity components of natural resource management systems”. In addition to increasing our knowledge of the core issues of the centre, it also aims to identify concrete policy instruments that will enable a broad partnership of state and non-state actors to develop appropriate and robust institutions that will encourage optimal resource use. Finally, in order to translate this knowledge and applied research into tangible outputs, the centre assists in the development of training programmes and workshops, while maintaining an e-mail network and an extensive publications catalogue. The CAPRi website includes a selection of links to other sites.

4. IASCP - The International Association for the Study of Common Property

<http://www.indiana.edu/~iascp/index.html>

Founded in 1989 the IASCP is a non-profit organization that seeks to enhance international understanding of the how the institutions associated with common property resources intersect with the management of natural resources. The IASCP is made up of over 2300 institutional and individual members from a wide variety of backgrounds and academic disciplines. The goals of the association are to: (1) encourage the exchange of knowledge; (2) to foster mutual exchange of scholarship and practical experience; and (3), to promote appropriate institutional design. The association sponsors biannual international conferences and publishes a quarterly journal called the *Common Property Resource Digest*, and maintains an extensive collection of on-

line resources, bibliographies, abstracts, conference papers and other valuable materials. The IASCP homepage also includes an extensive list of links to a wide variety of websites that feature information on resource tenure issues in agriculture, forestry, fisheries and other natural resource management related areas. For more information on the IASCP and the Common Property Resource Digest contact Charlotte Hess, the IASCP Information officer at: iascp@indiana.edu

5. IIED - International Institute for Environment and Development

<http://www.iied.org/index.html>

Celebrating 25 years of interdisciplinary research, the International Institute for Environment and Development is a independent NGO that promotes sustainable patterns of world development through collaborative research, policy studies, consensus building and public information. The IIED website is *extensive* and it provides the reader with a wide variety of options that cross many sectors and disciplines. IIED coordinates a number of specific research centres that deal with issues such as *Forestry and Land Use, Drylands, and Sustainable Agriculture and Rural Livelihoods*. In addition to the many *in-house* linkages provided by the IIED homepage, the website also connects to online searchable databases and an online bookstore that contains all of IIEDs publications, journals and discussion papers.

6. IFRI - International Forestry Research and Institutions Research Program

<http://www.indiana.edu/~ifri/welcome.html>

Initiated in 1992 the IFRI is based at the University of Indiana. The program addresses issues related to deforestation and looks at the type and characteristics of institutions associated with sustainable forestry practices. The net result is to help policy makers and forest users design and implement more effective forest policies. The IFRI is made up of a network of collaborating research institutes in North America, Latin America, Asia and Africa. The IFRI utilizes the institutional analysis and development framework which promotes interdisciplinary research and analysis. The IFRI homepage provides an entry point to an extensive bibliography on resource tenure issues, common property and institutional analysis.

7. International Rivers Network

<http://www.irn.org/>

The International Rivers Network works with and supports local communities working to protect their rivers and watersheds. The Network supports local communities in their efforts to resist development projects that destroy rivers and livelihoods, while



promoting equitable and sustainable methods for meeting water requirements, energy needs and for controlling and managing floods. IRN maintains a strong international network of multidisciplinary 'experts' and community development practitioners that work together in an advocacy and public education capacity. The IRN website provides information on its South East Asia rivers and watersheds campaign. This campaign includes initiatives around the Mekong Basin, San Roque in the Philippines, and Bakun in Malaysia. IRN maintains a watch for 'urgent actions', provides resource materials in the form of publications, and maintains active listserves for more general activities and specific campaigns. The IRN homepage provides links to other related sites.

8. Land Tenure Center

<http://www.wisc.edu/ltc>

The LTC at the University of Wisconsin serves as a resource and learning centre on issues relating to land tenure, land rights, land access, and land use. The centre specializes in the relationships among economic development, political and socio-economic institutions and environmental sustainability. The centre promotes interdisciplinary collaborative research. The LTC homepage offers a variety of library services, searchable databases, and the opportunity to subscribe to an electronic discussion on tenure. In addition to online resources, the LTC publishes research papers, working papers, tenure briefs and a biannual newsletter. The research centre collaborates with institutes and experts from around the world and it conducts research oriented projects funded by bilateral and multilateral donors.

To subscribe to the TENURE discussion send the following command in the body of an email message to listserver@relay.doit.wisc.edu (leave the subject line blank and do not include a signature):

SUBSCRIBE TENURE yourfirst name yourlast name

Questions about the e discussion should be directed to:
owner-tenure@relay.doit.wisc.edu

All other inquiries should be sent to: lrc-uw@facstaff.wisc.edu