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"COMMON PROPERTY, COLLECTIVE ACTION AND ECOLOGY"

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COMMON PROPERTY, COLLECTIVE ACTION AND ECOLOGY
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AUGUST 19-21, 1991
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Monday, August 19

9:00 am Introductions

Toby Alice Volkman, SSRC
Madhav Gadgil, Indian Institute of Science
Paul Greenough, University of Iowa
Ron Herring, Cornell University

9:30 am Session I: Local Institutional Solutions to the "Tragedy of the Commons"

Chair: Ramachandra Guha, Institute of Economic Growth, Delhi

A Comparative History of Three Kinds of Common Property Resources from the District of Uttara Kannada, in Karnataka
Madhav Gadgil, Indian Institute of Science
Discussant: Pramod Parajuli, Syracuse University

Survival Through Commons: Performance in an Uncertain World
Anil Gupta, Indian Institute of Management
Discussant: Daniel Bromley, University of Wisconsin

Mark Poffenberger, University of California-Berkeley
Discussant: Harry Blair, Bucknell University

Self-Organizing Communities: The Institutional Roots of Colonial Rural Punjab
Minoti Kaul, Indiana University
Discussant: Anil Gupta, Indian Institute of Management

Common Property Resource Management in the Garwhal Hills
Ravi Chopra, People's Science Institute, Dehra Dun
Discussant: Harirar Acharya, World Bank, Kathmandu

12:20 pm Lunch

2:00 pm Continuation of Session I

4:00 pm Tea

4:30-5:30 pm Concluding Discussion on CPR Management

Tuesday, August 20

9:30 pm Session II: Local Resistance and Contestation

Chair: Bina Agarwal, Institute of Economic Growth, Delhi

Cultural Politics of Ecology: Resistance for Space and Spaces of Resistance in Jharkhand, India
Pramod Parajuli, Syracuse University
Discussant: Paul Greenough, University of Iowa

The Forest Economy of the Dangs in the Early Nineteenth Century
David Hardiman, School of Oriental and African Studies
Discussant: Chhatrapatti Singh, Indian Institute of Law

Discussant-at-large: Ramachandra Guha, Institute of Economic Growth, Delhi

12:00 Lunch

1:30 pm Session III The Culturalist - Materialist Problematic in Explanation

Chair: Ron Herring

The Gender and Environment Debate: Lessons from India
Bina Agarwal, Institute of Economic Growth, Delhi
Discussant: David Hardiman, School of Oriental and African Studies

Managing Wildness in Colonial and Post-Colonial South Asia
Paul Greenough, University of Iowa
Discussant: Ann Grodzins Gold, Cornell University

Cultural Constructions of the Natural Environment in and Beyond Rajasthan
Ann Grodzins Gold, Cornell University
Discussant: Minoti Kaul, Indiana University

From Commons to Commodities
Vandana Shiva, Research Foundation for Science and Ecology, Dehra Dun
Discussant: Ravi Chopra, People's Science Institute, Dehra Dun

4:00 Tea

4:30-6:00 Contintuation of Session III

7:00 Conference Dinner

Wednesday, August 21

9:00 am Session IV: Community, Authority and State

Chair: Madhav Gadgil, Indian Institute of Science

Democracy, Equity and Common Property Resource Management in South Asia
Harry Blair, Bucknell University
Discussant: Ron Herring, Cornell University

Property, Authority Systems, and the Artful State
Daniel Bromley, University of Wisconsin
Discussant: Madhav Gadgil, Indian Institute of Science

Politics of Nature: Interests, Commons, Dilemmas and the State
Ron Herring, Cornell University
Discussant: Ramachandra Guha, Institute of Economic Growth, Delhi

12:30 pm Lunch

2:00-3:30 pm Concluding Considerations

Paul Greenough, University of Iowa
Madhav Gadgil, Indian Institute of Science

A note to participants: You will have twenty minutes in which to present your paper; you may assume everyone has read your paper in advance. Discussants should take 10 minutes, and responses by authors to discussants will be followed by open discussion. Session chairs are primarily timekeepers, but should also help to keep discussion focused and moving.

(1)

THE GENDER AND ENVIRONMENT DEBATE:
Lessons from India

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I am grateful to a number of people for comments on the earlier versions: Janet Seiz, Gillian Hart, Nancy Folbre, Jean Dreze, Lourdes Beneria, Gail Hershatter, Pauline Peters, Tariq Banuri and Myra Buvinic. I also gained from some lively discussions following seminar presentations of the paper at the Center for Population and Development Studies, Harvard University, Feb 14, 1991; the Center for Advanced Study in International Development, Michigan State University, April 1990; the Hubert Humphrey Institute of Public Affairs, University of Minnesota, April 1990; and the Dept. of Rural Sociology, Cornell University, May 1990.

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ABSTRACT

The central focus of this paper are the questions: Is women's relationship with the environment distinct from that of men? If so, how and why? It argues that women are both victims of environmental degradation in quite gender-specific ways and significant actors in the process of environmental protection. Critiquing the dominant strands of ecofeminist analysis in the USA for focusing overly on the ideological link between women and nature, it locates the gender-specificity of environmental effects and responses particularly in women's material reality: in the existing gender and class (/caste/ethnic) divisions of labour, property and power. In doing so, it also formulates an alternative perspective to ecofeminism, termed here as *feminist environmentalism.* It argues that just as critical as the well-recognized class dimension in the importance of village commons and forests for basic survival, is the gender dimension: given their limited access to private property resources, the cash economy, and the market, women are much more dependent on common property resources (CPRs) than men of the same households. Indeed, for women, CPRs constitute one of the few sources of subsistence unmediated by dependency relationships with men. The privatization and statization of these commons thus involves not only a collective loss for poor households but a specific loss for the women of such households.

To concretise the discussion, the paper draws upon the experience of the Indian subcontinent, especially India: the forms of environmental degradation, its causes, its class-gender effects, and the responses to it by the State and by women's grass-roots collective action. It also underlines the need to contextualize women's current participation in ecology movements in terms of their geographic and cultural specificity, and notes that such collective action is likely to be obstructed in regions where women's autonomy is strongly circumscribed.

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THE GENDER AND ENVIRONMENT DEBATE:
Lessons from India

Why do we need to examine the issue of gender within the environment debate? What is women's relationship with the environment? Is it distinct from men's relationship with the environment?

In this paper I will argue that women, specially those in poor rural households in India, on the one hand are victims of environmental degradation in quite gender-specific ways. On the other hand they have been active agents in movements of environmental protection and regeneration, often bringing to them a gender-specific perspective, and one which needs to inform our view of alternatives.

The growing literature on ecofeminism in the west, and especially in the USA, conceptualises the link between gender and the environment primarily in ideological terms. An intensifying struggle for survival in the developing world highlights the material basis for this link and lays the ground for an alternative formulation to ecofeminism, which I term feminist environmentalism.

To contextualise the discussion, and to examine the opposing dimensions of women as victims and women as actors in concrete terms, the paper will focus on India, although the issues are clearly relevant to other parts of the Third World as well. The discussion is divided into five sections: Section I outlines and critiques some of the assumptions underlying the ecofeminist debate in the USA and one prominent Indian variant of it, and suggests an alternative conceptualisation. Section II spells out the nature of ongoing environmental degradation in rural India and its causes, as well as the ways in which natural resources are being appropriated for use by a minority; Section III traces the implications of these processes for women of poor rural households; Section IV highlights and contrasts the State's responses to these processes with grass-roots (especially women's) responses; and the concluding Section V argues for an alternative, transformative approach to development.

I. SOME CONCEPTUAL ISSUES

Ecofeminism

Ecofeminism embodies within it several different strands of discourses, most of which have yet to be spelt out fully, and which reflect, among other things, different positions within the western feminist movement (radical, liberal, socialist). As a body of thought it is as yet underdeveloped and still evolving. Nevertheless it constitutes a noteworthy attempt to theorise the issue (and carries a growing advocacy); as such it needs to be addressed. However, my purpose here is not to undertake a detailed critique of ecofeminist discourse. Rather it is to focus on some of the major elements of that discussion, in order to examine whether and how it might feed into the formulation of a Third World perspective on gender and the environment. Disentangling the various threads in the debate, and focusing on those more clearly articulated, provides us with the

following picture of the ecofeminist argument(s):[1]

1. There are important connections between the domination and oppression of women and the domination and exploitation of nature.
2. In patriarchal thought, women are identified as being closer to nature and men as being closer to culture. Nature is seen as inferior to culture; hence women are seen as inferior to men.
3. Since the domination of women and the domination of nature have gone together, women have a particular stake in ending the domination of nature, 'in healing the alienated human and non-human nature' (King, 1989:18).
4. The feminist movement and the environmental movement both stand for egalitarian, non-hierarchical systems. They thus have a good deal in common and need to work together to evolve a common perspective, theory and practice.

In the ecofeminist argument, therefore, the connection between the domination of women and that of nature is basically seen as ideological, as rooted in a system of ideas and representations, values and beliefs, that place women and the non-human world hierarchically below men. And it calls upon women and men to reconceptualise themselves, and their relationships to one another and to the non-human world, in non-hierarchical ways.

We might then ask: in what is this connection between nature and women seen to be rooted? The idea that women are seen as closer to nature than men was initially postulated by Sherry Ortner (1974), who argued that, 'Woman is being identified with - or, if you will, seems to be a symbol of - something that every culture devalues, defines as being of a lower order of existence than itself. (That something)... is 'nature' in the most generalised sense.' Women are everywhere 'being symbolically associated with nature, as opposed to men, who are identified with culture' (Ortner, 1974: 72-73). A woman is seen as closer to nature than a man because 'her body and its functions' are more involved more of the time with 'species life' (pregnancy, menstruation), and place her in social roles (eg. childrearing) considered of a lower order of the cultural process than that of a man. Their social roles in turn also give women a different psychic nature (Ortner, 1974:73-87).

In other words, Ortner sees the connection between women and nature as rooted in biology. The logic of Ortner's argument makes it a theory of women as nature, even though she pulls back from that extreme position by recognising that women, like men, also mediate between nature and culture.

Ortner's position has since been criticised on several counts, particularly by social anthropologists who argue that the nature-culture divide is not universal across all cultures, nor is there uniformity in the meaning attributed

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[1] See especially King (1981, 1989, 1990); Salleh (1984); Merchant (1983); Griffin (1978); and various articles in Plant (ed. 1989), and Diamond and Orenstein (ed. 1990). Of course, not every strand in the above argument is necessarily subscribed to by each of these authors. Also see discussions and critiques by Zimmerman (1987); Warren (1987); Cheney (1987); and Longino (1981).

to 'nature', 'culture', 'male', and 'female'.[2] Still, some ecofeminists accept Ortner's position uncritically and in different ways reiterate it. An extreme form of this position is that taken by Salleh (1984) who grounds even women's consciousness in biology and in nature. She argues (1984: 340):

> Women's monthly fertility cycle, the tiring symbiosis of pregnancy, the wrench of childbirth and the pleasure of suckling an infant, these things already ground women's consciousness in the knowledge of being coterminous with nature. However tacit or unconscious this identity may be for many women... it is nevertheless "a fact of life".

Others such as King and Merchant argue that the nature-culture dichotomy is a false one, a patriarchal ideological construct which is then used to maintain gender hierarchy. At the same time they accept the view that women are ideologically constructed as closer to nature because of their biology.[3]

Merchant (1983), however, in an illuminating historical analysis, shows that in pre-modern Europe the conceptual connection between women and nature rested on two divergent images, coexisting simultaneously, one which contrained the destruction of nature and the other which sanctioned it. Both identified nature with the female sex. The first image, which was the dominant one, identified nature, especially the earth, with the nurturing mother, and culturally restricted 'the types of socially and morally sanctioned human actions allowable with respect to the earth....'(Merchant, 1983: 2, emphasis mine [4]). The opposing image was of nature as wild and uncontrollable which could render violence, storms, droughts and general chaos. This image culturally sanctioned mastery and human dominance over nature.

Between the 16th and 17th centuries, Merchant suggests, the Scientific Revolution and the growth of a market-oriented culture in Europe undermined the image of an organic cosmos with a living female earth at its center. This image gave way to a mechanistic world view in which nature was reconceived as something to be mastered and controlled by humans. The twin ideas of mechanism and of dominance over nature supported both the denudation of nature and male dominance over women. Merchant (1983:xx, emphasis mine) notes:

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[2] See especially MacCormack (1980:13), various articles in MacCormack and Stratern (ed: 1980), and Moore (1988).

[3] Merchant (1983:144) writes:
'Because women's physiological functions of reproduction, nurture and childbearing are viewed as closer to nature, their social role is lower in the cultural scale than that of the male....In early modern Europe, the assumption of the nature-culture dichotomy was used as a justification for keeping women in their place in the established hierarchical order of nature, where they were placed below the men of their status group.'

[4] Merchant (1983: 3) notes, for instance, that mining was seen as violating the sacredness of the living earth as mother: 'One does not readily slay a mother, dig into her entrails for gold, or mutilate her body...'

> The ancient identity of nature as a nurturing mother links women's history with the history of the environment and ecological change....In investigating the roots of our current environmental dilemma and its connections to science, technology,and the economy, we must reexamine the formation of a world view and a science that, by reconceptualising reality as a machine rather than a living organism, sanctioned the domination of both nature and women.

Today, Merchant (1983:xix) proposes, juxtaposing the egalitarian goals of the women's movement and the environmental movement can suggest 'new values and social structures, based not on the domination of women and nature as resources, but on the full expression of both male and female talent and on the maintenance of environmental integrity.'

Ecofeminist discourse, therefore, highlights (a) some of the important conceptual links between the symbolic construction of women and nature and the ways of acting upon them (although Merchant alone goes beyond the level of assertion to trace these links in concrete terms, historically; (b) the underlying commonality between the premises and goals of the women's movement and the environmental movement; and (c) an alternative vision of a more egalitarian and harmonious future society.

At the same time the ecofeminist argument as constructed is problematic on several counts:

1. It posits 'woman' as a unitary category and fails to differentiate between women by class, race, ethnicity, and so on. It thus ignores forms of domination other than gender which also impinge critically on women's position.[5]

2. It locates the domination of women and of nature almost solely in ideology, neglecting the (interrelated) material sources of this dominance (based on economic advantage and political power).

3. Even in the realm of ideological constructs, it says little (with the exception of Merchant's analysis) about the social, economic and political structures within which these constructs are produced and transformed. Nor does it address the central issue of the means by which certain dominant groups (predicated on gender, class, etc.) are able to bring about ideological shifts in their own favour, and how such shifts get entrenched. These questions become especially relevant when we recognise that at any one time not one but several ideological streams and discourses might co-exist, as Merchant's analysis shows for 16-17th century Europe.

4. It says nothing of women's lived material relationship with nature, as opposed to what others or they themselves might conceive that relationship to be.

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[5] King (1989) in a recent essay (unlike in her earlier work) does mention the necessity of such a differentiation, but does not discuss how a recognition of this difference would affect her basic analysis.

5. Those strands of ecofeminism that trace the connection between women and nature to biology may be seen as adhering to a form of essentialism (viz. some notion of a female 'essence' which is unchangeable and irreducible).[6] Such a formulation flies in the face of wide-ranging evidence that concepts of nature, culture, gender, and so on, are historically and socially constructed, and vary across and within cultures and time periods.[7]

In other words, while the debate highlights the significant effect of ideological constructs in shaping relations of gender dominance and forms of acting on the non-human world, if these constructs are to be challenged it is necessary to go further. We need a theoretical understanding of what could be termed 'the political economy of ideological construction', that is of the interplay between conflicting discourses, the groups promoting particular discourses, and the means used to entrench views embodied in those discourses.[8] Equally, it is critical to examine the underlying basis of women's relationship with the non-human world at levels other than ideology (say through the work women and men do, and the gender division of property and power); and to address how the material realities in which women of different classes (/castes/races) are rooted, might affect their responses to environmental degradation. Women in the West, for instance, have responded in particular ways to the threat of environmental destruction, such as by organising the Greenham Commons resistance to nuclear missiles in England, and by participating in the Green movement

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[6] For an illuminating discussion of the debate on essentialism and constructionism within feminist theory see Fuss (1990). She notes (1990:2) that: 'Essentialism is classically defined as a belief in true essence - that which is most irreducible, unchanging, and therefore constitutive of a given person or thing. This definition represents the traditional Aristotelian understanding of essence, the definition with the greatest amount of currency in the history of Western metaphysics.'

[7] See case studies in MacCormack and Stratern (ed: 1980). As MacCormack (1980:3-4) notes: 'The link between women and nature is not given. Gender and its attributes are not pure biology. The meanings attributed to male and female are as arbitrary as the meanings attributed to nature and culture.'

[8] To elaborate, ideological construction may be seen as an ongoing process of interaction and negotiation among groups with conflicting interests. The interest of the dominant (economically and politically powerful) groups would be to push their own notions about the world and society into what the French sociologist Bourdieu (1977) terms 'doxa' - that which is accepted in that society as natural and self-evident, as part of undisputed tradition, as opposed to ideas over which there is ongoing debate and dispute. The interest of the dominated groups would be to reduce the space of doxa, and that of the dominant groups to maintain it. Ideological constructions of gender, of nature, and of the relationship between the two may thus be seen as resulting from concrete struggles between competing groups, and therefore as potentially challengable and changeable. This conceptualisation of how certain ideologies and viewpoints gain dominance and get entrenched, while co-existing ones get undermined, can pave the way for formulating a political economy of ideological construction.

across Europe and the USA. A variety of actions have similarly been taken by women in the Third World, as discussed later. The question then is: are there gendered aspects to these responses? If so, in what are these responses rooted?

Vandana Shiva's (1988) work on India takes us a step forward. Like the ecofeminists, she sees violence against nature and against women as built into the very mode of perceiving both. Like Merchant, she argues that violence against nature is intrinsic to the dominant industrial/developmental model, which she characterises as a colonial imposition. Associated with the adoption of this developmental model, Shiva argues, was a radical conceptual shift away from the traditional Indian cosmological view of (animate and inanimate) nature as Prakriti, as 'activity and diversity' and as 'an expression of Shakti, the feminine and creative principle of the cosmos' which 'in conjunction with the masculine principle (Purusha)...creates the world'(Shiva, 1988: 39). In this shift, the living, nurturing relationship between man and nature as earth mother was replaced by the notion of man as separate from and dominating over inert and passive nature. 'Viewed from the perspective of nature, or women embedded in nature,' the shift was repressive and violent. 'For women... the death of Prakriti is simultaneously a beginning of their marginalisation, devaluation, displacement, and ultimate dispensability. The ecological crisis is, at its root, the death of the feminine principle....'(Shiva, 1988:42).

At the same time, Shiva notes that violence against women and against nature are linked not just ideologically, but also materially. For instance, Third World women are dependent on nature 'for drawing sustenance for themselves, their families, their societies'. The destruction of nature thus becomes the destruction of women's sources for 'staying alive'. Drawing upon her experience of working with women activists in the Chipko Movement - the environmental movement for forest protection and regeneration in the Garhwal hills of Northwest India (of which more later) - Shiva argues that 'Third World women' have both a special dependence on nature and a special knowledge of nature. This knowledge has been systematically marginalised under the impact of modern science: 'Modern reductionist science, like development, turns out to be a patriarchal project, which has excluded women as experts, and has simultaneously excluded ecology and holistic ways of knowing which understand and respect nature's processes and interconnectedness as science'(Shiva, 1988: 14-5).

Shiva takes us further than the western ecofeminists in exploring the links between ways of thinking about development, the processes of developmental change, and the impact of these on the environment and on the people dependent upon it for their livelihood. These links are of critical significance.

Nevertheless her argument has several analytical limitations, the three principal ones being the following:

(a) Although her examples relate to rural women in India, her generalisations conflate all 'Third World women' into one category. While she distinguishes Third World women from the rest, like the ecofeminists she does not differentiate between women of different classes, castes, races, etc. Hence, implicitly, a form of essentialism could be read into her work, in that all Third World women, whom she sees as 'embedded in nature', qua women have a special relationship with the natural environment. This still begs the question: what is the basis of this

relationship and how do women acquire this special understanding?

(b) She does not indicate by what concrete processes and institutions ideological constructions of gender and nature have changed in India, nor recognise the co-existence of several ideological strands, given India's cultural and religious diversity. For instance, her emphasis on the feminine principle as the guiding idea in Indian philosophic discourse, in fact relates to the Hindu discourse alone, and cannot be seen as applicable for Indians of all religious persuasions.[8] Indeed Hinduism itself is pluralistic and contains several co-existing discourses. But perhaps most importantly, it is not clear how and in which historical period(s) the concept of the feminine principle in practice affected gender relations, or relations between people and nature.

(c) She attributes existing forms of destruction of nature and the oppression of women (in both symbolic and real terms) principally to the Third World's history of colonialism and to the imposition of western science and a western model of development. Undisputably (as I will go on to argue), the colonial experience and the forms that modern development has taken in Third World countries have been destructive and distorting economically, institutionally and culturally. However, it cannot be ignored that this process impinged on pre-existing bases of economic and social (including gender) inequalities.

Here it is important to distinguish between the particular model of modernisation that clearly has been imported/adopted from the West by many Third World countries (with or without a history of colonisation), and the socio-economic base on which this model was imposed. Pre-British India, especially during the Mughal period, was considerably class/caste stratified, although varyingly across regions (Habib, 1982, 1984). This would have affected the patterns of access to and use of natural resources by different classes and social groups. Although much more research is needed on the political economy of natural resource use in the pre-colonial period, the evidence of differentiated peasant communities at that time cautions against sweeping historical generalisations about the effects of colonial rule.

By locating the 'problem' almost entirely in the Third World's experience of the West, Shiva misses out on the very real local forces of power, privilege and property relations that pre-date colonialism. What exists today is a complex legacy of colonial and pre-colonial interactions that defines the constraints and parameters within which, and from which, present thinking and action on development, resource use and social change have to proceed. In particular, a strategy for change requires an explicit analysis of the structural causes of environmental degradation, its effects, and responses to it (as elaborated in the body of this paper).

In other words, while Shiva's description of the adverse environmental consequences, especially for women, of modernisation and modern science is

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[8]Also see Dietritch's (1989) discussion on this.

graphic and valuable, her theoretical framework is debatable. The outline for an alternative framework, which I term feminist environmentalism, is suggested below.

Feminist Environmentalism

I would like to suggest here that women's and men's relationship with nature needs to be understood as rooted in their material reality, in their specific forms of interaction with the environment. Hence insofar as there is a gender and class (/caste/race)-based division of labour and distribution of property and power, gender and class (/caste/race) structure people's interactions with nature and so structure the effects of environmental change on particular people, and their responses to it. And where knowledge about nature is experiential in its basis, the divisions of labour, property, and power which shape experience also shape the knowledge based on that experience.

For instance, poor peasant and tribal women have typically been responsible for fetching fuel and fodder, and in hill and tribal communities have also often been the main cultivators. They are thus likely to be affected adversely in quite specific ways by environmental degradation. At the same time, in the course of their everyday interactions with nature, they acquire a special knowledge of species-varieties and the processes of natural regeneration. (This would include knowledge passed on to them by, say, their mothers.) They could thus be seen as both victims of the destruction of nature, and as repositories of knowledge about nature, in ways distinct from the men of their class. The former aspect would provide the gendered impulse for their resistance and response to environmental destruction. The latter would condition their perceptions and choices of what should be done. Indeed, on the basis of their experiential understanding and knowledge, they could provide a special perspective on the processes of environmental regeneration, one that needs to inform our view of alternative approaches to development. (By extension, women who are no longer actively using this knowledge for their daily sustenance, and are no longer in contact with the natural environment in the same way, are likely to lose this knowledge over time, and with it the possibility of its transmission to others.)

In this conceptualisation, therefore, the link between women and the environment can be seen as structured by a given gender and class (/caste/race) organisation of production, reproduction and distribution. Ideological constructions such as of gender, of nature, and of the relationship between the two, may be seen as (interactively) a part of this structuring, but not the whole of it. This perspective I term feminist environmentalism.

In terms of action such a perspective would call for struggles over both resources and meanings. It would imply grappling with the dominant groups who have the property, power and privilege to control resources, and these or other groups who control ways of thinking about them, via educational, media, religious and legal institutions. On the feminist front there would be a need to challenge and transform both notions about gender and the actual division of work and resources between the genders. On the environmental front there would be a need to challenge and transform both notions about the relationship between people and nature, and the actual methods of appropriation of nature's resources by a few.

Feminist environmentalism underlines the necessity of addressing these dimensions from both fronts.

To concretise the discussion, consider India's experience in the sections below. (Where relevant, reference will also be made to other parts of South Asia.) The focus throughout is on the rural environment.

II. ENVIRONMENTAL DEGRADATION AND FORMS OF APPROPRIATION

In India (as in much of Asia and Africa) a wide variety of essential items are gathered by rural households from the village commons and forests, for personal use and sale: food, fuel, fodder, fibre, small timber, manure, bamboo, medicinal herbs, oils, materials for housebuilding and handicrafts, resin, gum, honey, spices, etc.[10] Many of these products have also proved critical for tiding families over periods of seasonal or acute food shortages such as drought and famine (Agarwal, 1990a). While all rural households use the village commons in some degree, for the poor they are of critical significance given the skewedness of privatised land distribution in the subcontinent.[11] Data from 12 semi-arid districts in seven states of India in the early 1980s indicates that for poor rural households (the landless and those with less than 2 ha dryland equivalent) VCs account for 20 percent or more of total income in 7 districts, and 9-18 percent in the remaining, but contribute only 1-4 percent of the incomes of the non-poor (Table 1). The dependence of the poor is especially high for fuel and fodder: across the regions studied, VCs supply 91-100 percent of firewood and 66-84 percent of the total domestic fuel, 69-89 percent of the grazing needs and 8-9 percent of the food intake of the landless and landpoor. In contrast, they account for 8-32 percent of the domestic fuel and 11-42 percent of the grazing needs of the non-poor households. [The noted interregional variations in dependence on VCs stem from variations both in the availability of VC area and its productivity.] Access to VCs reduces income inequalities in the village between poor and nonpoor households - the Gini coefficients of village income

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[10] A study on the food habits of tribal communities in Madhya Pradesh in central India lists 165 trees, shrubs, and climbers that they use as food in various forms. Another on tribal communities in the Attapadi valley of Kerala, in south-west India, documents the use of some 80 different fruits, leaves, barks and flowers for medicine (KFRI, 1980: 235). Even in the green revolution belt of Delhi and Uttar Pradesh in north-west India, in two villages studied by Dasgupta (1987), agricultural labourers derived some 17 percent and 24 percent of income from free collection, including collection both from VCs and other people's fields; and for most poor households, items collected free formed the bulk of dietary supplements to cereals bought or earned in kind through wage work. Also there is a close link between the viability of small farmers' private property resources and their access to VCs for grazing draft animals as well as milch cattle. [For a useful discussion on this link between VCs and the productivity of privately-controlled lands also see Blaikie, 1985).

[11] It is estimated that in 1981-82, 66.6 percent of landowning households in rural India owned 1 ha or less and accounted for only 12.2 percent of all land owned by rural households (NSSO, 1987). The distribution of operational holdings is almost as skewed (NSSO, 1986).

distribution are consistently lower in all the states studied when incomes from the commons are added in. Also there is a close link between the viability of small farmers' private property resources and their access to VCs for grazing draft animals as well as milch cattle (Jodha, 1986; Blaikie, 1985).

Forests, likewise, have always been significant sources of livelihood, especially for tribal populations, and provided the basis of swidden cultivation, hunting, and the gathering of non-timber forest produce (NTFP). In India, even today, nearly 5 million persons are estimated to be involved in shifting cultivation (Srivastava, 1977). In addition, NTFP accounts for fairly significant proportions of total tribal incomes.[12] On the whole, an estimated 30 million or more people in the country depend wholly or substantially on NTFP for a livelihood (Kulkarni, 1983). These sources are especially critical during lean agricultural seasons (Pingle, 1975; Agarwal, 1990a).

The health of forests, in turn, has an impact on the health of soils (especially in the hills) and the availability of ground and surface water for irrigation and drinking. For a large percentage of rural households, the water for irrigation, drinking and various domestic uses comes directly from rivers and streams in the hills and plains. Again there are class differences in the nature of their dependency and access. For instance, rich peasant households are much more able to tap groundwater (itself a communal resource) for irrigation and drinking by sinking wells and tubewells than the poor who are more dependent on surface sources. The richer households are also better able to sink more and deeper wells or tubewells.

However, the availability of the country's natural resources to the poor is being severely eroded by two parallel, and interrelated, trends: (1) their growing degradation both in quantity and quality; and (2) their increasing statisation (appropriation by the State) and privatisation (appropriation by a minority of individuals), with an associated decline in what was earlier communal. These two trends, both independently and interactively, underlie many of the differential class-gender effects of environmental degradation outlined in Section III. Independently, the former trend is reducing overall availability, and the latter is increasing inequalities in the distribution of what is available. Interactively, an altered distribution in favour of the State and some individuals and away from say community control can contribute to environmental degradation insofar as community resource management systems may be more effective in environmental protection and regeneration, than are the State or individuals. These two trends I term the primary factors, underlying the class-gender effects of environmental change. Several intermediary factors impinge on these primary ones of which the most important, in my view, are the following:

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[12] In Madhya Pradesh (which has the largest concentration of tribal population in India) 14 to 38 percent (varying by location) of total tribal income comes from NTFP; in Andhra Pradesh the figure is 11 percent, and in parts of Gujarat 35 percent (GOI, 1982). In Orissa, an estimated 13 percent of the forest population subsists exclusively on NTFP and for another 39 percent it is an important secondary source of income (CSE, 1985-86:91).

1. The erosion of community resource management systems resulting from the shift in 'control rights' over natural resources away from community hands;[11]
2. Population growth;
3. Technological choices in agriculture and their associated effect on local knowledge systems.

These also need to be seen in interactive terms. Consider each in turn.

PRIMARY FACTORS

Forms of Environmental Degradation

Although there is as yet an inadequate data base to indicate the exact extent of environmental degradation in India and its cross-regional variations,[12] available macro-information provides sufficient pointers to warrant considerable concern, and possibly alarm. Degradation in India's natural resource base is manifest in disappearing forests, deteriorating soil conditions, and depleting water resources.

Forests: Satellite data from India reveals that in 1985-87, 64.0 m ha or 19.5 percent of the country's geo-area was forested (Table 2). This is estimated to be declining at a rate of 1.3 mha a year. Regionally, much of what remains is concentrated in the north-east, east and central India, the north-west being especially denuded.

Soils: In 1980, by official estimates, 172 m ha (or 56.6 percent) of the country's land was suffering from environmental problems, especially water and wind erosion. Unofficial estimates are even higher. The estimated net annual loss of cultivable land with waterlogging alone is as high as half the irrigated potential created by some canal projects (Joshi and Agnihotri, 1984), creating what the local people aptly call 'wet deserts'. The area under periodic floods is noted to have increased from 20 to 40 m ha between 1971-81 - a doubling in ten years. Soil fertility is also found to be declining, as the excessive use of chemical fertilisers associated with crop technologies under use leads to the loss of various salts and micro-nutrients such as zinc, manganese and copper.

Water: Groundwater levels have fallen permanently (as opposed to a seasonal

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[11] For a brief but useful discussion on property rights in relation to environmental resources see Dasgupta and Maler (1990). I prefer to use the term "control rights" here, since what appears critical in this context is less who owns the resources, as who has control over them. Hence, for instance, the control of State-owned resources could effectively vest with the village community.

[12] Ives and Messerli's (1989) study is a sobering reminder of the need for carefully examining the existing evidence on the Himalayan region and the validity of popular myths about the extent, nature and technically linked effects of environmental degradation, especially in the form of deforestation, in that region.

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decline), even in northern India with its high water tables, due to the indiscriminate sinking of tubewells - the leading input in the green revolution technology.[15] As water tables fall, the depletion of soil moisture leads to what has been termed 'soil-water droughts'(Bandhyopadhyay, 1986). Also, as a result, many drinking water wells have dried up or otherwise been rendered unusable (Jalal in CSE, 1985-86:30). In addition, fertiliser and pesticide run-offs into natural water sources have destroyed fish life and polluted water for human use in several areas (CSE, 1985-86).

The Process of Statisation

In India, both under colonial rule and continuing in the post-colonial period, State control over forests and village commons (VCs) has grown, with selective access being granted to a favoured few. To begin with, several aspects of British colonial policy have had long-lasting effects [16]: First, they established State monopoly over forests - the Indian Forest Act of 1876 had elaborate provisions by which compact blocks of forests were designated 'reserved' to facilitate sustained timber extraction. Second, associated with this was a severe curtailment in the customary rights of local populations to these resources, rights of access being granted only under highly restricted conditions, with a total prohibition on the barter or sale of forest produce by such right holders. At the same time, the forest settlement officer could give considerable concessions to those he chose to so privilege. Third, the colonial State promoted the notion of 'scientific' forest management which essentially cloaked the practice of encouraging commercially profitable species, often at the cost of species used by the local population. For instance, it is noted that to encourage the spread of chir pine and deodar in the Himalayan foothills of northern India, oak trees were lopped systematically under the garb of scientific forestry and silviculture. Fourth, there was virtually indiscriminate forest exploitation by European and Indian private contractors, especially for the expansion of railways in the mid-19th century, and for building ships and bridges in the inter-war years. Forest land was also given away for establishing tea and coffee plantations, and for expanding the area under agriculture to increase the government's land revenue base.[17]

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[15] In the Coimbatore region of Tamil Nadu, the water level has fallen by 25-30 meters over the past 10 years (Jayal, 1983: 83). In the Kolar district of Karnataka it has fallen below 200 meters (Bandhyopadhyay, 1986); and in Mahsana district of Gujarat, the depth of the tubewell bore is now over 300 meters, relative to about 90 meters 20 years ago (Dhawan, 1982:54). Similar trends are noted in parts of Punjab, Haryana and Uttar Pradesh (Dhawan, 1982: 150).

[16] See especially, Guha (1983, 1985).

[17] In Nepal, the clearing of the forests for agriculture was similarly encouraged to enhance land revenue, although in this case it happened under the rule of local monarchies, especially from the mid-18th century onwards, accelerating further when the Ranas came to power in the mid-19tgh century (Bajracharyaa, 1983; and Ives and Messerli, 1989).

Effectively what these policies did was to (a) severely erode local systems of forest management; (b) legally cut off an important source of sustenance for people, even though illegal entries continued; (c) create a continuing source of tension between the forestry officials and the local people; and (d) orient forest management to commercial needs.

Post-colonial policies show little shift from the colonial view of forests as primarily a source of commercial use and gain.[18] State monopoly over forests has persisted, with all the attendent tensions, as has the practice of scientific forestry in the interests of commercial gain. Tree felling has continued for agricultural expansion, large river valley projects, stone quarrying, and providing industrial raw materials and fuel to small-scale industries (Agarwal, 1986). Restrictions on local people's access to non-timber and minor forest produce have actually increased. For several products only the State has rights of collection and trade. The local population can collect forest produce for personal use but not sale, and only from selected forest areas, being almost completely barred from the large tracts declared 'reserved'. In many areas, even this limited access is in the nature of 'concessions' rather than of 'rights', and tribal harrassment and exploitation by forest guards is widespread (Chand and Bezboruah, 1980; Swaminathan, 1982; Joshi, 1981).

The Process of Privatisation

A growing privatisation of community resources in individual (essentially male) hands has paralleled the process of statisation. Customarily, large parts of village common lands, especially in north-west India, were what could be termed 'community-private': they were private insofar as use rights to them were usually limited to members of the community and was therefore exclusionary; at the same time they were communal in that such rights were often administered by a group rather than by an individual.[19] Over the past three decades alone, as Jodha's (1986) survey in 7 states reveals, the percent of total village area under VCs has declined from 15-42 (varying by region) in 1950-52 to 9-28 in 1982-84. In other words, the decline ranges from 26 percent to as much as 63 percent in some regions (see Table 3).[20]

Jodha attributes this principally to three causes, each linked in some way

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[18] The National Commission of Agriculture's 1976 Report on forestry saw forests primarily as suppliers of raw materials to industry (especially pulp and paper), defence, communications and export, and only secondarily as providing the local people with fuelwood, fodder, etc. (GOI, 1976).

[19] However, the degree to which the village community acted as a cohesive group and the extent of control it exercised over communal lands varied across undivided India: it was much greater in the north-west than elsewhere (Baden-Powell, 1957). Also see Bromley and Cernea (1989) for a more general discussion on different property regimes.

[20] More recent region-specific studies document a continuing decline: see Iyengar (1989) for Gujarat, and Brara (1989) for Rajasthan.

to State policy acting to benefit selected groups over others: illegal encroachments by farmers, made legal over time; government distribution of common land to individuals under various schemes, purportedly to benefit the poor but actually benefiting the well-off, such as the land reform programme implemented in the 1950s and the 20-point programme of the 1970s; and the auctioning of parts of VCs by the government to private contractors for commercial exploitation. Much of the privatisation has favoured the larger farmers (Table 3): For 16 of the 19 districts covered, the share of the poor was less than that of the non-poor. Those who already owned relatively more land also received more: Jalore district in Rajasthan is the most dramatic case. Here 86 percent of the privatised commons, including almost all the good quality land, went to landowning farmers, while the landless received only 14 percent, much of it of poor quality. *Hence the poor lost out collectively while gaining little individually.*[21] The effect of this loss on poverty levels is not captured by conventional poverty indices, since the data sets on which they are based cannot adequately measure the income contribution of these communal resources.

Similarly, in the tapping of groundwater through tubewells, there are dramatic inequalities in the distribution of what is effectively an underground commons. Tubewells are concentrated in the hands of the richer village households (Agarwal, 1983). The associated fall in the water table (noted earlier) has several adverse effects on poorer households:

-- the drying up of their shallow irrigation wells as well as their drinking water wells;
-- the depletion of soil-moisture on their lands as the better- off households, who can afford the necessary licences, sink deeper tubewells. In extreme situations, this can convert even the limited good quality land in the hands of the poor into unproductive wasteland: In Kolar district (Karnataka), for instance, while large farmers today grow grapes and mulberry, using licenced deep tubewells, the resultant sharp drop in water tables has rendered large tracts in the surrounding area barren, including the land given to the landless under the land reform programme (Bandhyopadhyay, 1986).

INTERMEDIARY FACTORS

The Erosion of Community Resource Management Systems

The statisation and privatisation of communal resources have, in turn, systematically undermined traditional institutional arrangements of resource use and management. The documentation on this is growing, but even existing work is revealing. For instance, traditional systems of irrigation encompassed a plurality of delivery methods (drainage channels, surface drainage tanks, wells, etc.), and there were traditional systems of community water management, such as of tanks in south India and Sri Lanka (Sengupta, 1985; Leach, 1967), and of canals in the Punjab in north-west India (Seklar, 1981). Again, there is a

[21] A similar process has been ongoing in Pakistan (Cernea, 1981) and Nepal (Macfarlane, 1976).

variety of evidence on the communal management of forests and village commons.[12] For instance, implicit rules governed the location and extent of permissable tree lopping within many village communities, such as observed in Uttar Pradesh: Moench (1988) from his field research in Munglori village (Garhwal hills) in 1984, found that each village in the vicinity had a clearly defined 'turf' area in the forests, over which it claimed exclusive use rights by custom. The villagers avoided cutting all the branches of any one tree, and selectively cut from those trees which had a 'good crop' of branches, thereby guarding against overlopping. As a result there existed a de facto lopping rotation in oaks of two to three years and an average branch harvest age of about five years.[13]

Likewise, traditional methods of gathering firewood and fodder, or of practicing shifting agriculture, were typically not destructive of nature. Firewood for domestic use in rural households was collected in the form of twigs and fallen branches, which did not destroy the trees. Even today, 75 percent of firewood used as domestic fuel in northern India (and even 100 percent in some areas) is in this form (Agarwal, 1987). The practice of careful lopping for tree fodder observed in parts of northern India in fact enhances overall fodder productivity. Again, shifting cultivation, as earlier practiced, allowed sufficient time for soil regeneration: at the turn of the century, in parts of northeast India, the fallow period is said to have been 30 years or more (Agarwal, 1989). Traditional religious and folk beliefs also contributed to the preservation of nature: in many regions, sacred groves dedicated to local deities sometimes stretched over 100 acres or more, entry into them being severely restricted and tree cutting usually forbidden (Guha, 1985).

Of course, much more empirical documentation is needed on how regionally widespread these traditional systems of management were, and the contexts in which they were successful in ensuring community cooperation. (For instance, grass-roots organising experience in India suggests that successful cooperation is much more likely among communities which are more economically and socially homogenous than among those which are highly class/caste differentiated.) However, the basic point is that where traditional community management existed, as it did in many areas, responsibility for resource management was linked to resource use via local community institutions. Where control over these resources passed from the hands of the community to those of the State or of individuals, this link was effectively broken.

In turn, the shift from community control and management of common property, to State or individual ownership and control, has increased

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[12] See e.g. Guha (1985), Gadgil (1985), and Moench (1988) for India; Messerschmidt (1985), Willian quoted in Fortmann and Bruce (1988), and Thompson and Warburton (1985) for Nepal.

[13] Messerschmidt (1985), likewise, describes a system of community action in a Nepal village which was explicitly organised for protecting and improving local forest resources.

environmental degradation.[24] Bromley and Cernea (1989: 25) note: '...(State ownership) sets the government against the peasants when, in fact, successful resource management requires the opposite'. Further, 'The appearance of environmental management created through the establishment of government agencies, and the aura of coherent policy by issuance of decrees prohibiting entry to - and harvesting from - State property, has led to continued degradation of resources under the tolerant eye of government agencies.' In fact, not infrequently, government forest officials and guards collude with contractors to profit from illegal felling in the forest land under their guardianship. Some graphic and detailed examples of this exist for both India and Bangladesh.[25]

Property rights vested in individuals are also no guarantee for environmental regeneration. Indeed, as discussed at greater length in Section IV of the paper, individual farmers attempting tree-planting for short-term profits, have tended to plant quick-growing commercial trees such as eucalyptus, which can prove environmentally costly.

These negative experiences of State and individual interventions and responses are especially noteworthy in the context of the ongoing debate today about what kind of regime of ownership and control of natural resources would be most effective in protecting and regenerating the environment.

Population growth

Excessive population growth has often been identified as the primary culprit of environmental degradation. And undoubtedly, a rapidly growing population impinging over time on a limited land/water/forest base is likely to degrade the environment. However, political economy dimensions clearly underlie the pace at which this process occurs and how the costs of it are distributed. The continuing (legal and illegal) exploitation of forests, and the increasing appropriation of village commons and ground water resources by a few, leave the vast majority to subsist on a shrinking natural resource base. In this context, it can be argued with some validity that if shortening swidden cycles in the hills are today leading to soil erosion, or trees are being felled by the poor for domestic use or sale, this is a symptom of the crisis rather than a cause. Also this deterioriation needs to be viewed against the backdrop of eroding community resource management systems which, where they existed, would have been in a better position to enforce limitations on what people could and did take from communal resources, and so could well have ensured their protection, despite population pressure.[26] Even today, as common lands become scarcer, some observers note that the more economically and socially homogenous communities in several regions of India have begun to cooperate, for managing the commons under

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[24] The process described for India is paralleled in Pakistan (Cernea, 1981) and Nepal (World Bank, 1979; Bajracharya, 1983; and Thompson and Warburton, 1985). Also see discussion in Dasgupta and Maler (1990).

[25] See Nath (1968) for India, and BRAC (1980) for Bangladesh.

[26] Also see the discussion in Bromley and Cernea (1989).

their control.[17]

Population growth can thus be seen as exacerbating a given situation but not necessarily as its primary cause. It is questionable that interventions to control population growth can, in themselves, stem environmental degradation, although clearly, as Shaw (1988:7) argues, they can 'buy crucial time until we figure out how to dismantle more ultimate causes'.

What adds complexity to even this possibility is that in the link between environmental degradation and population growth, the causality can also run in the opposite direction. For instance, poverty associated with environmental degradation could induce a range of fertility-increasing responses: reduced education for young girls as they devote more time to collecting fuel, fodder, etc. leading to higher fertility in the long-term, given the negative correlation between female education and fertility; higher infant mortality rates inducing higher fertility to ensure a given completed family size; having more children to enable the family to diversify incomes as a risk-reducing mechanism in environmentally high-risk areas, and so on (Rosenzweig and Wolpin, 1985; Maclachlan, 1983). [These links are another reminder of the criticality of focusing on women's status when outlining policies for environmental protection.]

Technological Choices in Agriculture, and Erosion of Local Knowledge Systems

Many of the noted forms of environmental degradation are associated with the green revolution technology adopted to increase crop output. While dramatically successful in the latter objective in the short-run, it has had high environmental costs: a decline in water tables due to tubewells, a loss of soils due to the waterlogging accompanying most large irrigation schemes, a decline in soil fertility with the excessive use of fertilisers, an increase in water pollution with pesticides, and so on. Deteriorating soil and water conditions are already being reflected in declining and more unstable crop yields. Under some large-scale irrigation works, crop yields are lower than in the period immediately prior to the project (Joshi and Agnihotri, 1984; Kalpavriksh, 1985). Moreover, the long-term sustainability of the output increases achieved so far, itself appears doubtful. In India, the annual growth rate of agricultural production over 1968-85 was 2.6 percent, that is, slightly lower than the pre-green-revolution, 1950-65, rate of 3.08. Production has also become more unstable for several reasons: The spread of new crop varieties to areas of uncertain weather conditions and without an adequately assured water supply has made crop production more variable with rainfall fluctuations than it was with the earlier varieties (Rao, et al., 1987). Genetic variety has also declined, and many of the indigenously-developed crop varieties (long-tested and adapted to local conditions) have been replaced by imported seeds which are more susceptible to pest attacks, and associated crop losses. All this raises questions about the long-term sustainability of agricultural growth, and more generally of rural production systems, under present forms of technology and resource management in India, and indeed in South Asia.

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[17] Anil Agarwal (Center for Science and Environment, Delhi), personal communication, 1990.

The choice of agricultural technology and production systems cannot be separated from the dominant view of what constitutes scientific agriculture. The green revolution embodies a technological mix which gives primacy to laboratory-based research and manufactured inputs and treats agriculture as an isolated production system. Indeed indiscriminate agricultural expansion, with little attempt to maintain a balance between forests, fields, and grazing lands assumes that the relationship between agriculture, forests and village commons is an antagonistic, rather than a complementary, one. By contrast, organic farming systems (now rapidly being eclipsed) are dependent on maintaining just such a balance. More generally, over the years, there has been a systematic devaluation and marginalisation of indigenous knowledge about species-varieties, nature's processes (how forests, soils and water are formed and sustained interrelatedly), and sustainable forms of interaction between people and nature.[*] These trends are not confined to countries operating within the capitalist mode. Similar problems of deforestation, desertification, salination, recurrent secondary pest attacks on crops, and pesticide contamination are emerging in China (Glaeser, 1987).

What is at issue here is not modern science in itself, but the process by which what is regarded as 'scientific knowledge' is generated and applied, and the fruits of that application distributed. Within the hierarchy of knowledge, that acquired via traditional forms of interacting with nature tends to be deemed less valuable.[**] And the people who use this knowledge in their daily lives - farmers and forest dwellers and especially women of these communities - tend to be excluded from the institutions which create what is seen as scientific knowledge. These boundaries are not inevitable. In Meiji Japan, the farmer's knowledge and innovative skills were incorporated in the broader body of scientific knowledge by a systematised interaction between the farmer, the village extension worker, and the scientist. This enabled a two-way flow of

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[*] Accompanying technological shifts there also appear to be shifts in the symbolic representations of crop-species, in the processes of agricultural production, and in the way farmers view their relationship with plants, the earth, etc. (Personal communication from A.R.Vasavi, Ph.D student, Dept. of Anthropology, Michigan State University, based on her fieldwork in Maharashtra.)

[**] Marglin (1988) makes a distinction between two systems of knowledge: '<u>techne</u>' and '<u>episteme</u>'. He characterises <u>techne</u> as the knowledge system derived from intuition, experience, trial-and-error, learning-by-doing, etc., transmitted through inter-personal relationships (parent-child, master-apprentice), geared to discovery rather than verification, contextual, belying the mind-body dualism, often impossible to articulate, and pluralistic. <u>Episteme</u> is characterised by him as a knowledge system based on logical deduction from self-evident first systems, analytical, impersonal, geared to verification, cerebral (mind separate from body), fully articulated, and claiming universality.
The dichotomy suggested by this distinction is debatable. However, an exploration along these lines is helpful insofar as it calls attention to existing hierarchies between, say, the knowledge of the environment that poor peasant and tribal women possess, and that professed by professionally-trained scientists.

information from the farmer to the scientist and vice-versa: 'Intimate knowledge of the best of traditional farming methods was thus the starting point for agricultural research and extension activities.'[20]

Such attempts contrast sharply with the more typical top-down flow of information from those deemed experts to those deemed ignorant. Typically, there is an absence of a two-way interaction - a dialogue - between the scientists/professionals, the village extension agents and poor peasants, especially women. The problem here is only partly one of economic inequalities. Underlying the divide between the scientists/professionals (usually urban-based) and the rural users of innovations (including user-innovators) whose knowledge comes more from field experience than from formal education, are also usually the divides between mental and physical labour, between city and countryside, and between the genders.

III. CLASS-GENDER EFFECTS

We come then to the class-gender effects of the processes of degradation, statisation and privatisation of nature's resources, and the erosion of traditional systems of knowledge and resource management. These processes have had particularly adverse effects on poor households, because of the noted greater dependency of such households on communal resources. However, focusing on the class significance of communal resources provides only a partial picture - there is also a critical gender dimension. It is women and female children who are most adversely affected by environmental degradation. The reasons for this are primarily three-fold:

1. There is a pre-existing gender division of labour. It is women in poor peasant and tribal households who do much of the gathering and fetching from the forests, village commons, rivers and wells. In addition, women of such households are burdened with a significant responsibility for family subsistence and they are often the primary, and in many female-headed households the sole, economic providers. Women's ability to fulfil this responsibility is more constrained than is men's because of gender inequalities in access to productive and subsistence resources.

2. There are systematic gender differences in the distribution of subsistence resources (including food and health care) within rural households, as revealed by a range of indicators: anthropometric indices, morbidity and mortality rates, hospital admissions data, and the sex ratio (which is 93

[20] Johnston (1969:61); also see Hayami and Ruttan (1971:157).This was also the idea behind China's promotion of the 'three-in-one'innovation teams (combining workers, technicians and management personnel) in factories, during the Cultural Revolution, and of a close relationship between peasants and agricultural technicians during the early 1970s (Ishikawa, 1975).

females per 100 males for all-India).[31] These differences, especially in health care, are widespread in India (and indeed in South Asia) being particularly acute in the agriculturally prosperous north-western states of Punjab and Haryana where the sex ratios are respectively 88 and 87 females per 100 males.[32]

3. There are significant inequalities in men's and women's access to the most critical productive resource in rural economies, viz. agricultural land, and associated production technology.[33] Women also have a systematically disadvantaged position in the labour market. They have fewer employment opportunities, less occupational mobility, lower levels of training, and lower payments for the same or similar work.[34] They also face much greater seasonal fluctuations in employment and earnings than do men, due to the greater task specificity of their work, have sharper peaks and longer slack periods in many regions, and have less chance of finding employment in the slack seasons.[35]

Given their limited rights in private property resources such as agricultural land, rights to communal resources such as the village commons have always provided rural women and children (especially those of tribal, landless or marginal peasant households) a source of subsistence, unmediated by dependency relationships on adult males. For instance, access to village commons is usually linked to membership in the village community, and therefore women are not excluded in the way they may be in a system of individualised private land rights. This acquires additional importance in regions with strong norms of female seclusion (as in north-west India) where women's access to the cash economy, to markets, and to the market place itself, is constrained and dependent on the mediation of male relatives.[36]

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[31] For India see Agarwal (1986a); Dreze and Sen (1990); Sen and Sengupta (1984); Kynch and Sen (1986); and Harriss (1986). Also see Chen et al. (1981) for Bangladesh.

[32] For a discussion on the causes of this regional variation see Miller (1981), Dreze and Sen (1990),and Agarwal (1986a).

[33] Women in India rarely own land, and in most areas also have limited access to personal assets such as cash and jewellery (see Agarwal, 1988). A more general and detailed discussion of gender and land rights in South Asia is contained in Agarwal (1991b, forthcoming).

[34] See discussions in Agarwal (1984, 1985, 1986a), Bardhan (1977, 1985), Duvvury (1989), and Ryan and Wallace (1985).

[35] See Agarwal (1984), Harriss (1977), and Ryan and Ghodake (1980, quoted in Lipton, 1983).

[36] The prevelance of 'territorial purdah' - the effective segregation of village space by gender, whereby there are clearly identifiable spaces which essentially constitute male spaces, such as the marketplace, that women are expected to avoid - strongly disadvantages women in their search for employment

It is against this analytical backdrop that we need to examine what I term the class-gender effects (the gender effects mediated by class) of the processes of environmental degradation, statisation and privatisation. These effects relate to at least six critical aspects: time, income, nutrition, health, social-survival-networks, and knowledge systems.

a) On Time

This is perhaps the most obvious. Given the existing gender division of labour, in most regions women are the main gatherers of fuel, fodder and water. Hence it is primarily their working day (already averaging 10-12 hours) that is lengthened with the depletion of and reduced access to forests, waters and soils. Firewood, for instance, is the single most important source of domestic energy in South Asia (providing over 65 percent of domestic energy in the hills and deserts of North India and Bangladesh, over 95 percent in Nepal and about 55 percent in Sri Lanka). Much of this is gathered and not purchased, especially by the poor. In recent years, there has been a several-fold increase in firewood collection time (see Table 4). In Bihar, in eastern India, where 7 to 8 years ago enough firewood could be gathered for self-consumption and sale within 1 to 2 km, now a trek of 8 to 10 km per day is required. In some villages of Gujarat, in western India, with the complete denudation of the surrounding forests, even a daily search of 4 to 5 hrs yields little apart from shrubs, weeds and the roots of trees - these do not provide continuous heat and increase cooking time (Nagbrahman and Sambrani, 1983). In Nepal, the difference in the time taken for collecting a load of firewood between areas of low deforestation and high deforestation is 82 percent in the lowlands, and 66 percent in the highlands (Kumar and Hotchkiss, 1988).

Likewise, the drying up of perennial streams in the hills and of shallower village wells in the plains (with the fall in water tables) has compounded the problem of drinking water availability, placing an additional burden of time and energy on women and young girls. Where low caste women often have access to only one well, its drying up could means an endless wait for their vessels to be filled by upper caste women, as was noted to have happened in Orissa.[37] A similar problem arises when drinking water wells go saline near irrigation works (Agarwal, 1981). Fodder collection, likewise, takes longer with a decline in the yields. As a woman in the hills of Uttar Pradesh (north India) puts it:

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and in managing land independently. Although seniority, age, whether she is a daughter or daughter-in-law, her class/caste all affect a woman's freedom of movement, so that older women with grown-up sons, village daughters, and women of poor and low caste families enjoy greater liberty, even here, spaces of predominantly male presence are to be avoided. These restrictions are apparent in northern India and are especially great in countries such as Bangladesh and Pakistan. (For a more detailed discussion on India, see especially Afshar and Agarwal, 1989, and Sharma (1980); for Bangladesh see Ellickson, 1972, and Arens and Van Beurden (1977); and for Pakistan see Shaheed, 1989.)

[37] Personal communication, Chitra Sundaram, DANIDA (Delhi), 1981.

> When we were young, we used to go to the forest early in the morning without eating anything. There we would eat plenty of berries and wild fruits... drink the cold sweet (water) of the Bani (oak) roots... In a short while we would gather all the fodder and firewood we needed, rest under the shade of some huge tree and then go home. Now, with the going of the trees, everything else has gone too (quoted in Bahuguna, 1984:132).

In this area, according to a woman grass-roots activist, the growing hardship of young women's lives with ecological degradation has led to an increasing number of suicides among them in recent years. Their inability to obtain adequate quantities of water, fodder and fuel causes tensions with their mothers-in-law (in whose youth forests were plentiful), and soil erosion has compounded the difficulty of producing enough grain for subsistence in a region of high male out-migration (Bahuguna, 1984).

b) On Income

The decline in non-timber forest products and various gathered items from the VCs adversely affects the incomes of poor rural households, for whom, as noted, these are often a significant supplementary source, and sometimes the only source, of income. Further, particularly in hill communities where, due to high male outmigration, women are often the primary cultivators, deteriorating soil conditions and the decrease in time available for crop production adversely affect crop yields and incomes from farming. A recent study in Nepal is indicative: it found that the substantial increase in firewood collection time due to deforestation has significantly reduced women's crop cultivation time, leading to an associated fall in the production of maize, wheat and mustard which are primarily dependent on female labour in the region. These are all crops grown in the dry season when there is increased competition from fuel and other collection activities (Kumar and Hotchkiss, 1988). The same is likely to be happening in the hills of India.

Similar implications for women's income arise with the decline in common grazing land and associated fodder shortage. Many landless widows I spoke to in Rajasthan (north-west India) in 1987 said they could not venture to apply for an IRDP buffalo loan as they had nowhere to graze it nor cash to buy fodder.

As other sources of livelihood get eroded, selling firewood is becoming increasingly common, especially in eastern and central India. Most 'headloaders' as they are called are women, earning a meagre Rs.5.50 a day for 20 kg of wood (Bhaduri and Surin, 1980; Agarwal and Desingkar, 1983). Deforestation directly impinges on this source of livelihood as well.

c) On Nutrition

As the area and productivity of village commons and forests fall, so does the contribution of gathered food in the diets of poor households. The declining availability of fuelwood has additional nutritional effects: efforts to economise induce shifts to less nutritious foods which need less fuel to cook or can be eaten raw; or force people to eat partially-cooked food which could be

toxic, or to eat leftovers which could rot in a tropical climate, or to miss meals altogether. While, as yet, there are no systematic studies on this for India, those for rural Bangladesh, are strongly indicative, and show that the total number of meals eaten daily as well as the number of cooked meals eaten in poor households is already declining (Howes and Jabbar, 1986; Hughart, 1989). A trade-off between the time spent in fuel gathering vs. cooking can also adversely affect the meal's nutritional quality. Indeed the fact that malnutrition can be caused as much by shortages of fuel as of food has long been part of the conventional wisdom of rural women who observe: 'It's not what's in the pot that worries you, but what's under it.'

While these adverse nutritional effects impinge on the whole household, women and female children bear an additional burden because of the noted gender biases in intra-family distribution of food and health care. There is also little likelihood of poor women being able to afford the extra calories for the additional energy expended in fuel collection.

(d) On Health

Apart from the health consequences of nutritional inadequacies, poor rural women are also more directly exposed than are men to water-borne diseases, and to the pollution of rivers and ponds with fertiliser and pesticide run-offs, because of the nature of the tasks they perform: fetching water for various domestic uses and animal care, washing clothes near ponds, canals and streams, and so on (Agarwal, 1981). The burden of family ill-health associated with water pollution also falls largely on women who take care of the sick. An additional source of vulnerability is the agricultural tasks women perform: for instance, rice transplanting, which is usually a woman's task in most parts of Asia, is associated with a range of diseases, including arthritis and gynaecological ailments (Mencher and Saradamoni, 1982; UNDP, 1979). Cotton picking, also done mainly by women, exposes them to pesticides which are widely used for cotton cultivation. In China several times the acceptable levels of DDT and BHC residues have been found in the milk of nursing mothers, among women agricultural workers (Wagner, 1987). In India, pesticides are associated with limb and visual disabilities (Mohan, 1987).

(e) On Social Support Networks

The considerable displacement of people that results from the submersion of villages in the building of major irrigation and hydro-electric works, or from large-scale deforestation in itself, has another (little recognised) class and gender implication: the disruption of social support networks. Social relationships with kin, and with villagers outside the kin network, provide economic and social support that is important to all rural households, but especially to poor households and to the women.* This includes reciprocal labour-sharing arrangements during peak agricultural seasons, loans taken in cash

* These are apart form the widely documented patron-client types of relationships.

or kind during severe crises such as droughts, the borrowing of small amounts of food stuffs, fuel, fodder etc, even in normal times, and so on. Women typically depend a great deal on such informal support networks, which they also help to build through daily social interaction, marriage alliances that they are frequently instrumental in arranging, and complex gift-exchanges.[39] Also the social and economic support this represents for women in terms of strengthening their bargaining power within families needs to be recognised, even if it is not easy to quantify.[40]

These networks, spread over a range of nearby villages, cannot be reconstituted easily. Rehabilitation programmes usually take care (even if in a limited way) of the interests of large landowning groups by alloting them alternative plots, but neglect the interests of the landless. Even less are such programmes in a position to recreate the nexus of cross-village social support systems. The gender specificity of this problem has in fact been widely noted in large resettlement schemes in several parts of Asia and Africa.[41] However, rehabilitation planners have yet to recognise the problem.[42]

Even unassociated with irrigation or resettlement schemes, large-scale deforestation can have a similar effect over a period of time. Indeed, for tribal communities, the destruction of the forests and the growing restrictions on what remains, has eroded a whole way of life. Two close observers of life among the Orissa tribals in eastern India, note: '...the earlier sense of sharing has disappeared... Earlier women could rely on their neighbors in times of need. Today this has been replaced with a sense of alienation and helplessness... the trend is to leave each family to its own fate.' (Fernandes and Menon, 1987: 115). Widows and the aged are the most neglected.

Further, the relationship between forest dwellers and forests is not just functional or economic, but also symbolic, suffused with cultural meanings and nuances, and woven into their songs and legends of origin. Deforestation destroys a whole way of living and thinking.

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[39] See Maclachlan (1983); Vatuk (1981); Sharma (1980), Caldwell, et al. (1988).

[40] See Agarwal (1990a) for a discussion on the factors affecting intra-household bargaining power. Also see Sen (1985).

[41] See Schijvers (1988) for Sri Lanka; literature on the Muda irrigation scheme in Malaysia; and Hanger and Morriss (1973) on the Mwea irrigation scheme in Kenya.

[42] Cost-benefit analysis of large irrigation works take no account of such concerns; indeed they frequently ignore the issue of rehabilitation altogether. For an interesting case study of the Tehri dam in north-west India, which illustrates how easily benefit/cost ratios can be manipulated to economically justify a project, see Paranjpe (1988).

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(f) On Women's Indigenous Knowledge

The gathering of food alone demands an elaborate knowledge of the nutritional and medicinal properties of plants, roots and trees, including a wide reserve knowledge of edible plants not normally used, but critical for tiding over prolonged shortages during climatic disasters. An examination of household coping mechanisms during drought and famine reveals a significant dependence on famine foods gathered mainly by women and children for survival. Also among hill communities it is usually women who do the seed selection work and have the most detailed knowledge about crop varieties.[43] This knowledge about nature and agriculture, acquired by poor rural women in the process of their everyday contact with and dependence on nature's resources, has a class and gender specificity, and is linked to the class specificity and gendering of the division of labour.

The impact of existing forms of development on this knowledge has been two-fold:

(a) The process of devaluation and marginalisation of indigenous knowledge and skills, discussed earlier, impinges especially on the knowledge that poor peasant and tribal women usually possess. Existing development strategies have made little attempt to tap or enhance this knowledge and understanding. At the same time, women have been excluded from the institutions through which modern scientific knowledge is created and transmitted.

(b) The degradation of natural resources and their appropriation by a minority, are also destroying the material basis on which women's knowledge of natural resources and processes is founded and kept alive, leading to its gradual eclipse.

IV. RESPONSES

Before discussing the responses to the processes described above, it is useful to recall some of the conceptual issues raised in Section I about the relationship between gender and the environment. The Indian experience highlights several aspects:

1. That the processes of environmental degradation and appropriation of natural resources by a few have specific class-gender as well as locational implications. It is women of poor, rural households who we noted are most adversely affected, and who (as elaborated later) have participated actively in ecology movements. 'Women' therefore cannot be posited (as the ecofeminist discourse has typically done) as a unitary category, even within a country, let alone across the Third World, or globally.

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[43] Among the Garo tribals of north-east India in the early 1960s, Burling (1963) found that the men always deferred on this count to the women, who knew of some 300 indigenously cultivated rice varieties. In Nepal even today it is women who do the seed selection work among virtually all communities (Acharya and Bennett, 1981).

2. The adverse class-gender effects of these processes are manifest in the erosion of both the livelihood systems and the knowledge systems on which poor rural women depend.

3. These processes and their impacts are rooted interactively on the one hand in ideology: in notions about development, about scientific knowledge, about the gender division of labour, and so on. On the other hand they stem from the economic advantage and political power predicated especially, but by no means only, on property differentials between households and between the genders.

Both the State and the people most immediately affected by environmental degradation have responded to these processes, but in different ways. [Also see Figure 1 on the following page which presents, in schematic form, some of the links discussed thus far between processes, causes, effects and responses.]

State Responses

The State's recognition that environmental degradation may be acquiring crisis proportions is recent and as yet partial; and, as we have seen, paradoxically the State's developmental policies are themselves a significant cause of the crisis. Not surprisingly, therefore, the State's response has been piecemeal rather than comprehensive. For instance, the problem of deforestation and fuelwood shortage has been addressed mainly by the initiation of tree-planting schemes of three types: (a) directly planting trees on State or community land; (b) encouraging village communities to plant on community land (community forestry); and (c) facilitating private tree planting by farmers (farm forestry). All these tend to be conflated into the category of 'Social Forestry'. However, if we define social forestry to be that which caters to the needs of the people such as for fuel, food, fertiliser, fodder and fibre,[44] then most of these initiatives would not qualify.

Most State ventures in the form of direct planting and community forestry have had high failure rates in terms of both tree planting and survival (Agarwal, 1986b). This is attributable to a variety of causes: the government's direct planting efforts have (a) typically favoured monocultural plantations principally for commercial use, at times teak, pine and eucalyptus replacing even mixed forests;(b) frequently involved the take-over of land used for other purposes by the local population; (c) been top-down in their implementation, and in many cases far from benefiting the poor have taken away even existing rights.[45]

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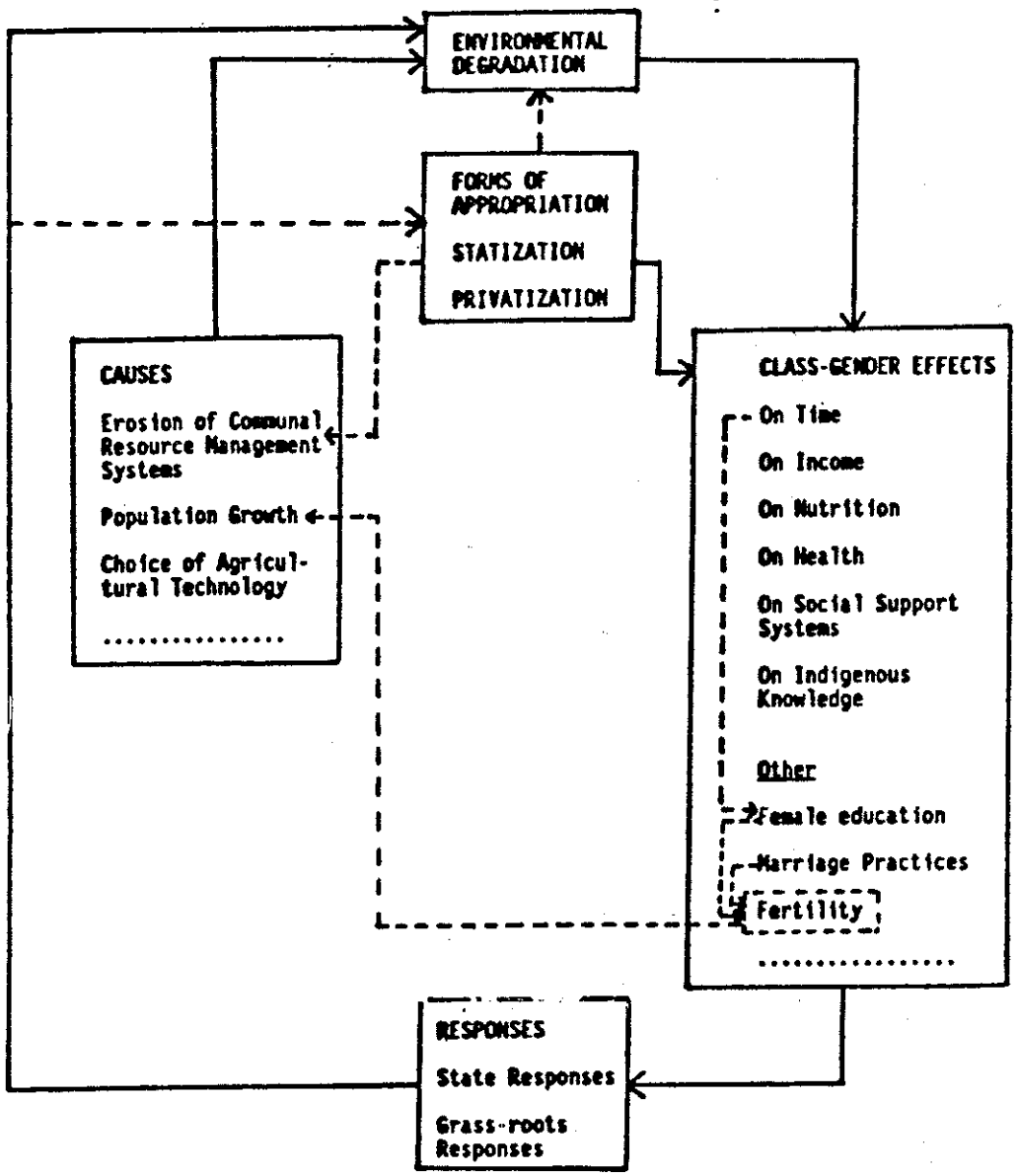
[44] These are the five 'Fs' identified as essential within the Chipko movement discussed later.

[45] For details see Agarwal (1986b).


ENVIRONMENTAL DEGRADATION
FORMS OF APPROPRIATION
STATIZATION
PRIVATIZATION
CAUSES
Erosion of Communal Resource Management Systems
Population Growth
Choice of Agricultural Technology
.....
CLASS-GENDER EFFECTS
On Time
On Income
On Nutrition
On Health
On Social Support Systems
On Indigenous Knowledge
Other
Female education
Marriage Practices
Fertility
.....
RESPONSES
State Responses
Grass-roots Responses
Direct effects
Indirect effects

This has led to widespread local resistance.[46] Also, women either do not feature at all in such schemes, or at best tend to be allotted the role of caretakers in tree nurseries, with little say in the choice of species or in any other aspect of the project. Community forestry schemes, on the other hand, are often obstructed by economic inequalities in the village community, and the associated mistrust among the poor in a system that cannot ensure equitable access to the products of the trees planted.

Ironically, the real 'success' stories, with plantings far exceeding targets, relate to farm forestry. The trees planted are those most in demand for pulp and poles (eucalyptus has been a great favourite) and the gains are limited to a small percentage of farm families operating medium and large holdings (World Bank, 1985). To reap quick profits, in several areas farmers have allotted fertile crop land to trees. As a result, employment, crop output, and crop residues for fuel have declined, often dramatically.[47] (Chandrashekar, 1987; Shiva, 1988).

Recent policies of giving out small plots of degraded forest land to the landless for tree planting barely make a dent on the problems of the poor, while in several parts of the country large tracts of such land have been given simultaneously to paper manufacturers for planting commercial species.[48]

As some environmentalists have rightly argued, this kind of approach to forestry, promoted as 'scientific forestry', is reductionist: nature seen as individual parts rather than as an interconnected system of vegetation, soil, water; the forest reduced to trees, the trees to biomass. In the reductionist world view 'only those properties of a resource system are taken into account which generate profits through exploitation and extraction; properties which stabilise ecological processes but are commercially non-exploitable are ignored and eventually destroyed' (Shiva, 1987).

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[46] There are numerous examples of this from across India: In Bihar, the forest department sought to replace a mixed forest by monocultural teak (Makhijani, 1979); in Uttar Pradesh, shesham and sal were cut to plant eucalyptus (Dogra, 1981); in Bastar (Madhya Pradesh) under a World Bank project, 40,000 ha of deciduous forest were to be clear felled for planting tropical pine - the scheme was shelved following public protest (D'Monte, 1982). In the Uttara Kannada district of Karnataka, the forest department felled 40,000 ha of natural forest cover to plant hybrid eucalyptus without proper trials (Chandrashekhar, 1987).

[47] In the Kolar district of Karnataka state in India, for instance, 63 percent of the foodgrain area was under eucalyptus in 1982. Between 1977-80 the area under ragi, the staple crop of the poor, declined by 66 percent and production by 92 percent (see Chandrashekhar, 1987 and Shiva, 1988).

[48] See India Today (1987). Somewhat more promising than the long-term leasing of plots to individual families are recent experiments in W.Bengal to give sections of degraded forest land to local communities for collective planting, management and monitoring (see Cernea, 1989a; and Chen, 1990).

Indeed, the noted effects of development policies on the environment - be they policies relating to agriculture or more directly to forests and water use - point to a strategy which has been extractive/destructive of nature rather than conserving/regenerative. It does not explicitly take account of the long-term complementarity between agriculture and natural resource preservation, and therefore raises serious questions about the ability of the system both to sustain long-term increases in agricultural productivity and to provide sustenance for the people.

Grass-roots Responses

But should we see people in general and women in particular solely as victims of environmental degradation and of ill-conceived top-down State policies?

The emergence of grass-roots ecology movements across the subcontinent (and especially India) suggests otherwise. These movements indicate that while poor peasant and tribal communities in general, and women among them in particular, are being severely affected by environmental degradation and appropriation, they are today also critical agents of change. Further, embodied in their traditional interaction with the environment are practices and perspectives which can prove important for defining alternatives.

The past decade, in particular, has seen an increasing resistance to ecological destruction in India, whether caused by direct deforestation (which is being resisted through non-violent movements such as Chipko in the Himalayan foothills and Appiko in Karnataka), or by large irrigation and hydroelectric works, such as the Narmada valley project covering three States in central India, the Koel-Karo in Bihar, the Silent Valley Project in Kerala (which was shelved through central government intervention and local protests in 1983), the Inchampalli and Bhopalpatnam dams in Andhra Pradesh (against which 5000 tribals, with women in the vanguard, protested in 1984), and the controversial Tehri dam in Garwal. Women have been active participants in most such protests.

Although fueled by differing ideological streams, which Guha (1988) identifies as Crusading Gandhian, appropriate technology, and ecological Marxism, these resistance movements suggest that those affected can also be critical agents of change. Common to these streams is the recognition that the present model of development has not succeeded either in providing sustenance or in ensuring sustainability. However, the points from which the differing ideologies initiate this critique are widely dispersed. In particular, they differ in their attitudes to modern science and to socio-economic inequalities. As Guha puts it, under the crusading Gandhian approach 'modern science is seen as responsible for industrial society's worst excesses', and socio-economic inequalities within village communities tend to get glossed over. Ecological Marxism sees modern science and the 'scientific temper' as indispensible for constructing a new social order, and there is a clear recognition of and attack on class and caste inequalities (altough the position on gender is ambiguous). Appropriate technology thinking, which falls within these two strands, is a less well-worked out philosophic and theoretical position than Gandhism and Marxism. It is pragmatic in its approach to modern science and emphasises the need to synthesize

traditional and modern technological traditions. While problems relating to socio-economic hierarchies are recognised there is no clear programme for tackling them. Over the past decade there has been some cross-fertilisation of thinking across these different ideological streams.

However, it is important to distinguish here between the perspectives revealed by an examination of practice within the environmental movement, and the explicit theoretical formulation of an environmental perspective. While dialectically interlinked the two do not entirely overlap. The three ideological streams, as identified by Guha, relate to different ways in which groups adhering to pre-existing ideological and philosophic positions (Marxist, Gandhian) have incorporated environmental concerns in their practice. In a sense environment has been added on to their other concerns by these groups. This does not as yet represent the formulation of a new theoretical perspective (that an environmental approach to development needs) by any of these groups.

In terms of practice within the movement, women have been a visible part of most rural grassroots ecological initiatives (as they have of peasant movements in general). This visibility is most apparent in the Chipko movement described below. However, women's participation in a movement does not in itself represent an explicit incorporation of a gender perspective, in either theory or practice, within that movement. Yet such a formulation is clearly needed. Feminist environmentalism as spelt out in Section I of the paper is an attempt in this direction.

To restate in this context, in feminist environmentalism I have sought to provide a theoretical perspective that locates both the symbolic and material links between people and the environment in their specific forms of interaction with it; and traces gender and class differentiation in these links to a given gender and class division of labour, property and power. Unlike Gandhism and Marxism, feminist environmentalism is not a perspective that is consciously subscribed to by an identifiable set of individuals or groups. However, insofar as tribal and poor peasant women's special concern with environmental degradation is rooted in this material reality, their responses to it, which have been articulated both in complementary and oppositional terms to the other ideological streams, could be seen as consistent with the feminist environmentalist framework.

The Chipko movement is an interesting example in this respect: although it emerged from the Gandhian tradition, in the course of its growth it has brought to light some of the limitations of an approach that does not explicitly take account of class and gender concerns. More generally too it is a movement of considerable historical significance whose importance goes beyond locational specificity, and is a noteworthy expression of hill women's specific understanding of forest protection and environmental regeneration.[*]

The movement was sparked off in 1972-73 by the action of the people of Chamoli district in north-west India, against the auctioning of 300 ash trees to a sports good manufacturer, while the local labour cooperative was refused

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[*] See Bandhyopadhyay and Shiva (1987); Shiva (1988); Jain (1984); Dogra (1984); Bahuguna (1984).

permission by the government to cut even a few trees to make agricultural implements for the community. Since then the movement has grown in the region and its methods and message have spread also to other parts of the country (Appiko in Karnataka is an offshoot), as well as abroad.[80] Further, the context of resistance has widened: tree felling is being resisted also to prevent disasters such as landslides; and there has been protest against limestone mining in the hills which has provoked violence from contractors and their hired men.

Women's active involvement in the Chipko movement has several noteworthy features that need highlighting here: First, their protest against the commercial exploitation of the Himalayan forests has been not only jointly with the men of their community when they were confronting non-local contractors, but in several subsequent instances, even in opposition to village men due to differences in priorities about resource use. Time and again, women have clear-sightedly opted for saving forests and the environment over the short-term gains of development projects with high environmental costs. In one instance, a potato seed farm was to be established by cutting down a tract of oak forest in Dungari Paitoli village. The men supported the scheme because it would bring in cash income. The women protested since it would take away their only local source of fuel and fodder and add five kilometers to their fuel collecting journeys, while cash in the men's hands would not necessarily benefit them or their children.[81] The protest was successful.

Secondly, women have been active and frequently successful in protecting the trees, stopping tree auctions, and keeping a vigil against illegal felling. In Gopeshwar town, to protect the surrounding forest, the local women's group has appointed watchwomen who receive a wage in kind to keep guard and to regulate the extraction of forest produce by villagers. Twigs can be collected freely, but any harm to the trees is liable to punishment.

Thirdly, replanting is a significant component of the movement. But in their choice of trees the priorities of women and men don't always coincide - women typically prefer trees that provide fuel, fodder and daily needs, the men commercially profitable ones.[82] Once again this points to the association between gendered responsibility for providing a family's subsistence needs and gendered responses to threats against the resources that fulfil those needs.

Fourthly, Chipko today is more than an ecology movement, and has the potential for becoming a wider movement against gender-related inequalities. For

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[80] There have been some recent examples of people hugging trees, Chipko-style, in the USA.

[81] There is a growing literature indicating significant gender differences in cash spending patterns, and also showing that a significant percentage of what men earn in poor rural households goes towards the purchase of items they alone consume, such as liquor, tobacco, clothes etc. For examples from India, see Mencher (1988), Deb quoted in Harriss (1986), and Gulati, 1976.

[82] This gender divergence has also been noted elsewhere, as in Rajasthan (Brara, 1987).

instance, there has been large-scale mobilisation against male alcoholism and associated domestic violence and wasteful expenditure. There is also a shift in self-perception. I have seen women stand up in public meetings of the movement and forcefully address the gathering. Many of them are also asking: Why aren't we members of the village councils?

Fifthly, implicit in the movement is a holistic understanding of the environment in general and forests in particular. The women, for instance, have constructed a poetic dialogue illustrating the difference between their own perspective and that of the foresters (quoted in Shiva, 1988):

Foresters: What do the forests bear?
Profits, resin & timber.

Women (Chorus): What do the forests bear?
Soil, water & pure air.
Soil, water and pure air,
sustain the earth and all she bears.

In other words, there is a recognition here that forests cannot be reduced merely to trees and the trees to wood for commercial use; that vegetation, soil and water form part of a complex and interrelated ecosystem. It is this recognition of the inter-relatedness and interdependence between the various material components of nature, and between nature and human sustenance, that is likely to be critical in evolving a strategy of sustainable environmental protection and regeneration.

Although the movement draws upon, indeed is rooted in, the region's Gandhian tradition which predates Chipko, women's responses go beyond the framework of that tradition and come close to feminist environmentalism in their perspective. This is suggested by the fact that they are beginning to confront gender and class relations in a number of small but significant ways: for instance, gender relations are called to question in their taking oppositional stands to the village men on several occasions, in asking to be members of village councils, and in resisting male alcoholism and domestic violence. Likewise, there is clearly a class confrontation involved in their resistance (together with the men of their community) to the contractors holding licences for mining and felling in the area.

At the same time, ecology movements such as Chipko need to be contextualised. It is noteworthy that while localised resistance to the processes of natural resource appropriation and degradation in India has taken many different forms, and arisen in diverse regional contexts, resistances in which entire communities and villages have participated to constitute a movement (such as Chipko, Appiko, Jharkhand, among others) have emerged primarily in hill or tribal communities. This may be attributable particularly to two factors: (a) the immediacy of the threat from these processes to people's survival; and (b) these communities being marked by relatively low levels of the class and social differentiation that usually splinter village communities in South Asia. They therefore have a greater potential for wider community participation than is possible in more economically

and socially stratified contexts.[83] Further, in these communities, women's role in agricultural production has always been visibly substantial and often primary - an aspect more conducive to their public participation than in many other communities of northern India (as well as in Pakistan and Bangladesh) which either directly endorse female seclusion or in various implicit and covert ways discourage women's participation in public decision-making processes and institutions. In such communities the dilemma of facilitating women's greater participation in the environmental movement remains. However, that it is not an entirely insurmountable problem is evidenced by the success of some women's collective initiatives in the 1970s, in the context of land and agricultural wage struggles, even in states such as Bihar.[84]

It also needs mention here that in emphasising the role of poor peasant and tribal women in ecology movements, I am not arguing, as do some feminist scholars, that women possess a specifically feminine sensibility or cognitive temperament; or that women, qua women, have certain traits that predispose them to attend to particulars, to be interactive rather than individualist, and to understand the true character of complex natural processes in holistic terms. [For a critique of these lines of argument see Longino,1987.] Rather, I locate the perspectives and responses of poor peasant and tribal women (perspectives which are indeed often interactive and holistic) in their material reality: in their dependence on and actual use of natural resources for survival, the knowledge of nature gained in that process, and the broader cultural parameters which define people's activities and modes of thinking in these communities. By this count, the perspectives and responses of men belonging to hill or tribal communities would likewise be more conducive to environmental protection and regeneration than those of men elsewhere; but not more than those of the women of such communities. This is because hill and tribal women, more than perhaps any other group, still maintain a reciprocal link with nature's resources - a link which stems (as noted in Section I) from a given organisation of production, reproduction and distribution, including a given gender division of labour.

At the same time, the positive aspects of this link should not serve as an argument for the continued entrenchment of women within a given division of labour. Rather they should serve as an argument for creating the conditions that would help univeralise this link with nature; for instance, among other things, by declassing and degendering the ways in which productive and reproductive activities are organised (within and outside the home), and property, resources and knowledge are distributed.

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[83] Societies with a previous history of successful collective action also appear more likely to successfully cooperate in the future (Seabright, 1990).

[84] A significant example is the Bodhgaya struggle for land rights launched under the initiative of the Chatra Yuva Sangharsh Vahini in Bihar in the late-1970s.

V. IN CONCLUSION

This paper has argued that tribal and poor peasant women, through a reciprocal and creative interaction with nature, have been significant providers of family subsistence. However, this provisioning has been in the face of considerable odds: first, women have far less access than men to productive resources (especially land), technology, control over social and political space and decision-making, employment and other income-earning opportunities, and even the basic means of self-reproduction viz. food and health care. Second, there has been a growing depletion, due to over-exploitation, of nature's resources.

What we have before us today is a scenario not only of high socio-economic inequality, but also of a growing destruction of nature, of the livelihoods of people most critically dependent on nature (tribals, poor peasants, and especially women in these communities), and of the knowledge that such people possess of nature.

While there is a spreading grassroots resistance to these inequalities and to environmental destruction - to the processes, products, people, property, power and profit-orientation that underlie them - the voices of this resistance are as yet too scattered to have political impact beyond the immediate local contexts. At the same time, their message is a vital one, even from a purely growth and productivity concern, and more so if our concern is with people's sustenance and survival.

The experiences of women's collective initiatives, in particular, provide several insights concerning women's grassroots responses to poverty and gender subordination. What is of particular note in the context of this discussion is that (a) poor women's militancy is much more closely linked to family survival issues than is men's; (b) implicit in these struggles is the attempt to carve out a space for an alternative existence that is based on equality not dominance over people, and on cooperation with and not dominance over nature.

Indeed what is (implicitly or explicitly) being called to question in various ways by these movements is the existing development paradigm - with its particular product and technological mix; its forms of exploitation of natural and human resources; and its conceptualisation of relationships between people, and between people and nature. However, a mere recognition that there are deep inequalities and destructiveness inherent in present processes of development is not enough. There is a need for policy to shift away from its present relief-oriented approach towards nature's ills and people's welfare, in which the solution to nutrient-depleted soils is seen to lie entirely in externally-added chemical nutrients, to depleting forests in monoculture plantations, to drought starvation in food-for-work programmes, to gender inequalities in ad hoc income-generating schemes for women, and so on. These solutions reflect an aspirin appoach to development - they are neither curative nor preventive, they merely suppress the symptoms for a while.

The realistic posing of an alternative (quite apart from its implementation) is of course not easy, nor is it the purpose of this paper to provide a blueprint. What is clear so far are the broad contours of an alternative approach: that it needs to be transformational rather than welfarist

- where development, redistribution and ecology link in mutually regenerative ways. This would necessitate complex and interrelated changes such as in the *composition* of what is produced, the *technologies* used to produce it, the *processes* by which decisions on products and technologies are arrived at, the *knowledge systems* on which such choices are based, the class and gender *distribution* of products and tasks, and so on.

For instance, in the context of forestry programmes, a different composition of the product may imply a shift from the currently-favoured monocultural commercial uses to varieties critical for local subsistence. An alternative agricultural technology may entail shifting from mainly chemical-based farming to more organic methods, from monocultural HYVs to mixed cropping with indigenously-produced varieties, from the emphasis on large irrigation schemes to a plurality of water-provisioning systems, and from a preoccupation with irrigated crops to a greater focus on dryland crops. A change in decision-making processes would imply a shift from the present top-down approach to one that ensures the broad-based democratic participation of disadvantaged groups. Indeed, insofar as the success stories of reforestation today relate to localised communities taking charge of their environmental base, a viable solution would need decentralised planning and control, and institutional arrangements that ensure the involvement of the rural poor, and especially women, in decisions about what trees are planted and how the associated benefits are shared. Similarly, to encourage the continued use and growth of local knowledge about plants and species in the process of environmental regeneration, we would require new forms of interaction between local people and trained scientists, and a widening of the definition of 'scientific' to include plural sources of knowledge and innovations, rather than merely those generated in universities and laboratories. This last is not without precedent, as apparent from the earlier discussion on Meiji Japan's interactive teams which allowed a flow of information not only from the agricultural scientist to the farmer, but also the reverse.

Indeed, environmental and gender concerns taken together open up both the need for re-examining, and the possibility of throwing new light on, many long-standing issues relating to development, redistribution and institutional change. That these concerns preclude easy policy solutions underlines the deep entrenchment (both ideological and material) of interests in existing structures and models of development. It also underlines the criticality of grass-roots political organisation of the poor and of women, as a necessary condition for their voices to be heeded, and for the entrenched interests to be undermined. In short, an alternative, transformational approach to development would involve both ways of <u>thinking</u> about things, and ways of <u>acting</u> on them. In the present context it would concern both how gender relations and relations between people and the non-human world are <u>conceptualised</u>, and how they are <u>concretised</u> in terms of the distribution of property, power and knowledge, and in the formulation of development policies and programmes. It is in its failure to explicitly address these political economy issues that the ecofeminist analysis remains a critique without threat to the established order.

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TABLE 1
AVERAGE ANNUAL INCOME FROM VCs IN SELECTED DISTRICTS OF INDIA
(1982-85)

State & Districts	Per household annual average income from VCs			
	Poor Households[1]		Other Households[2]	
	Value (Rs.)	Percent of total household income	Value (Rs.)	Percent of total household income
Andhra Pradesh				
Mahbubnagar	534	17	171	1
Gujarat				
Mehsana	730	16	162	1
Sabarkantha	818	21	208	1
Karnataka				
Mysore	649	20	170	3
Madhya Pradesh				
Mandsaur	685	18	303	1
Raisen	780	26	468	4
Maharashtra				
Akola	447	9	134	1
Aurangabad	584	13	163	1
Sholapur	641	20	235	2
Rajasthan				
Jalore	709	21	387	2
Nagaur	831	23	438	3
Tamil Nadu				
Dharmapuri	738	22	164	2

Notes: [1] landless households and those owning < 2 ha dryland equivalent.
[2] Those owning > 2 ha dryland equivalent.

Source: Jodha (1986).

Table 2

PERCENT GEO-AREA UNDER FOREST
INDIA: STATE-WISE, 1985-87

STATE	Percent geo-area under forest*
Andhra Pradesh	17.3
Arunachal Pradesh	82.3
Assam	33.2
Bihar	15.5
Gujarat	6.0
Haryana	1.3
Himachal Pradesh	24.0
Jammu and Kashmir	9.1
Karnataka	16.7
Kerala	26.1
Madhya Pradesh	30.1
Maharashtra	14.3
Manipur	80.0
Meghalaya	69.8
Mizoram	86.2
Nagaland	86.8
Orissa	30.3
Punjab	2.3
Rajasthan	3.8
Sikkim	42.8
Tamil Nadu	13.6
Tripura	50.1
Uttar Pradesh	11.5
West Bengal	9.6
All India	19.5

Note: Based on 1985-87 satellite imagery.
Source: Forest Survey of India, 1990, Government of India.

TABLE 3
DISTRIBUTION OF PRIVATISED VCs IN SELECTED DISTRICTS OF INDIA

State & Districts	VCs as percent of village area 1982-84	Percent decline in VC area, 1950-84	Percent of land to		Percent of recepients among the		Per household area owned (ha)			
			Poor	Others	Poor	Others	Poor		Others	
							Before[1]	After[2]	Before	After
Andhra Pradesh										
Mahbubnagar	9	43	50	50	76	24	0.3	0.9	3.0	5.1
Medak	11	45	51	49	59	41	1.0	2.2	3.1	4.6
Gujarat										
Banaskantha	9	49	18	82	38	62	0.8	2.0	5.4	8.8
Mehsana	11	37	20	80	36	64	1.0	1.7	8.0	9.8
Sabarkantha	12	46	28	72	55	45	0.5	1.1	7.0	9.8
Karnataka										
Bidar	12	41	39	61	64	36	1.0	2.0	6.4	9.2
Gulbarga	9	43	43	57	60	40	0.8	2.4	4.5	7.7
Mysore	18	32	44	56	67	33	0.9	1.9	4.1	11.6
Madhya Pradesh										
Mandsaur	22	34	45	55	75	25	1.2	2.5	7.7	12.4
Raisen	23	47	42	58	68	32	1.3	2.2	6.2	9.0
Vidisha	28	32	38	62	48	52	1.3	2.5	4.9	6.8
Maharashtra										
Akola	11	42	39	61	58	42	1.0	1.6	3.1	4.6
Aurangabad	15	30	30	70	42	58	1.1	2.2	6.4	6.3
Sholapur	19	26	42	58	53	47	0.7	2.2	3.4	5.6
Rajasthan										
Jalore	18	37	14	86	37	63	0.3	1.7	7.2	12.5
Jodhpur	16	58	24	76	35	65	0.4	1.3	2.3	3.8
Nagaur	15	63	21	79	41	59	1.3	2.5	2.4	5.2
Tamil Nadu										
Coimbatore	9	47	50	50	75	25	0.8	2.5	3.8	5.8
Dharmapuri	12	52	49	51	55	45	1.0	3.9	4.6	7.5

Note: [1] Before the distribution of VC land; [2] After the distribution of VC land.
Source: Jodha (1986).

TABLE 4
TIME TAKEN AND DISTANCE TRAVELLED FOR FIREWOOD COLLECTION

Country/Region	Year of Data	Firewood collection*		Data Source
		Time taken	Distance travelled	
India				
Chamoli (hills)				
(a) Dwing	}1982	5 hr/day@	over 5 km	}Swaminathan
(a) Pakhi	}	4 hr/day		}(1984)
Gujarat (plains)				
(a) Forested	}	once every 4 days	n.a.	}
(b) Depleted	}1980	once every 2 days	4-5 km	}Nagbrahman &
(c) Severely depleted	}	4-5 hr/day	n.a.	}Sambrani (1983)
Madhya Pradesh (plains)	1980	1-2 times/ week	5 km	Chand & Barboruah (1980)
Kumaon (hills)	1982	3 days/week	5-7 km	Folger and Dewan (1983)
Karnataka (plains)	n.a.	1 hr/day	5.4 km/trip	Batliwala (1983)
Garhwal (hills)	n.a.	5 hr/day	10 km	Agarwal (1983)
Bihar (plains)	c.1972	n.a.	1-2 km/day	}Bhaduri & Surin (1980)
	1980	n.a.	8-10 km/day	}
Rajasthan (plains)	1986	5 hr/day (winter)	4 km	personal observation (1988)
Nepal				
Tinan (hills)	1978	3 hr/day	n.a.	Stone (1982)
Pangua (hills)	late 1970s	4-5 hr/bundle	n.a.	Bajracharya (1983)
WDA** (lowlands)				
(a) low deforestation	} 1982-83	1.5 hr/day	n.a.	}Kumar and Hotchkiss (1988)
(b) high deforestation)		3 hr/day	n.a.	}

Notes: * Firewood collected mainly by women and children.
@ Average computed form information given in the study.
n.a. information not available.
** Western Development Area.

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DEMOCRACY, EQUITY AND COMMON PROPERTY RESOURCE MANAGEMENT IN THE INDIAN SUBCONTINENT

Paper to be presented at conference on "Common Property, Collective Action and Ecology," Bangalore, India, 19-21 August 1991

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Democracy and common property resource management (CPRM) have always been somewhat a somewhat uneasy pair. At the national level, environmental constituencies have often been able to obtain a hearing and have even been able at times to affect policy in substantive ways. On the other hand, just as pluralistic politics allows environmentalist groups to bring pressure to bear on the system, so too it permits resource-using, development-oriented constituencies to mount their own drives to influence policy, and the latter often carry the day against their opponents. Still, the environmentalists get some chance at determining the rules for utilizing CPRs.

The relationship between democracy and distributional equity is even more ambivalent. Democracy can certainly foster a social welfare policy designed to improve the lot of the poor, as the various social democratic regimes in post-war Europe testify. And in the wider context, a recent United Nations study of 88 countries shows a strong correlation between freedom and development more generally.[1] Yet in the British and American democracies during the 1980s, hugely popular national leaders put in place policies that, while they may have promoted economic growth, also redistributed income share from lower to upper levels, cut back on welfare services and in general did little for the poor.

At the village level, where both environment and equity matters cut much closer to the bone of people's livelihoods, both agendas have generally had a harder time of it, certainly in a democratic governmental setting. To be sure, there are numerous instances of indigenous *local groups* conserving and nurturing local CPRs, but there are few examples I am aware of in which statu-

[1] See UNDP (1991: 13-21). The report apparently stirred a considerable reaction from those countries graded low on both development and freedom (see Lewis 1991).

tory local *governmental bodies* on their own initiative have successfully maintained CPRs over extended periods of time. Local governments have administered social welfare programs satisfactorily in many instances, but these have been *centrally* (or in many Indian cases, state) originated and funded efforts, as with the Employment Guarantee Scheme in Maharashtra, not local initiatives. Local democracy, then, at least at first blush, would not seem especially hospitable to CPRM or to equity for the poor.

Worldwide tides, however, are sweeping in favor of democracy, which has either begun to take root or has been promised for immediate planting on such unlikely political soil as Chile, Algeria, Angola and Ethiopia. Certainly the democratic wave has had a powerful impact on South Asia. Whereas a decade ago India and Sri Lanka were among the few Third World states anywhere that possessed democratic polities, now Pakistan, Nepal and Bangladesh have added themselves to the growing list of systems practicing a democratic way of political life. All three states have held parliamentary elections widely regarded as free and open within the last couple of years, and while the experiments in each must as yet still be regarded as somewhat precarious, there appears to be enough stability in all three to begin thinking about the effects democracy will have throughout their systems.

The present time, in short, is most propitious for considering the likely impact of democracy on CPRM in the subcontinent. It is an interesting time, too, in bringing political science as a discipline back into the development policy arena, from which it has been essentially absent for the last two decades. In the 1960s there was much fascination in political science with "nation-building" (Deutsch and Foltz 1963; Bendix, 1964) and "political development" (Almond and Coleman 1960), including a policy focus on employing democratic politics as the major engine of progress (Hapgood, 1968), but by the mid-1970s interest in promoting democracy had waned as the center of gravity among comparativists in political science shifted to political economy and its concerns with class analysis as the best way to understand Third World politics. Indeed, many influential figures in the field saw democratic politics as essentially an *obstacle* to economic growth: (e.g., Huntington and Nelson 1976; Huntington 1987; Donnelly 1984). And there was little interest among political scientists in policy recommendations.

There remained some considerable enthusiasm for inducing participation as a development strategy (e.g., Chambers 1983; Esman and Uphoff 1984; Korten 1980 and 1984), to be sure, but this concern emerged among students of devel-

opment policy who were much more closely aligned with public administration and rural sociology as disciplinary fields than with comparative political science, whose scholars tended to be more focused on political analysis than on policy prescription.[2] Now at the onset of the 1990s, analysis and prescription appear to be coming back together, as increasing numbers of Third World countries embark on the democratic road.

The present essay will focus largely on forestry, for that is where the bulk of the CPR literature on the subcontinent concentrates itself, though fisheries, water use or grazing would all be eminently suitable sectors for such an inquiry and will be referred to occasionally. Further, most of the evidence will come from India, for it preponderates in the CPR analysis done thus far, just as it does in everything else having to do with South Asia. Happily, the Indian dominance is not a complete monopoly, for there is considerable forestry material available on Nepal (although much less on the other South Asian countries).

Neither of these restrictions should be a serious constraint in a short essay of the present kind, however, and each in fact offers certain advantages. At the local level, forestry represents a kind of mid-point on a CPRM spectrum stretching from "clean" to "messy" CPRs. At the "clean" or straightforward end, irrigation constitutes a CPR for which access by both outsiders and insiders is relatively easy to control, costs in maintaining the resource can be linked in users' minds to concrete benefits, and management group members can enforce sanctions against shirkers or free riders. With roads, at the other end of the spectrum, access can very rarely be controlled, users see little or no connection between any personal contribution they might make to maintenance, and any attempt to enforce rules for contributing costs (e.g., by collecting user fees) would be virtually impossible to administer.[3]

To put the case in less abstract terms, the geographical boundaries of a command area exclude outsiders from a local irrigation group; one has to have land immediately adjacent to the water source to use the water. And it is relatively easy to control the access of "insiders" (i.e., group members) to the water. Second, users can immediately appreciate the connection between con-

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[2] For a brief examination of the policy/analysis division within political science, see Blair (1991).

[3] My thinking on this issue has been greatly influenced by Elinor Ostrom and Larry Schroeder (cf. Ostrom, Schroeder & Wynne, 1990; Ostrom 1990; Schroeder 1990). The formulation put forth here, however, may vary somewhat with their own views.

tributing their own labor and the keeping the system going. And third, it is easy to determine who is contributing his share toward maintenance and to cut off water to the fields of those who are not.[4] On the other hand, villagers using a road traversing their locale would not be enthusiastic about maintaining it when outsiders could use it for free. Toll roads, for example, are exceptionally rare in South Asia.[5] CPRM systems are never easy to set up and maintain, but with small irrigation systems the issues are at least clear cut and, under the right conditions, manageable, whereas with roads the problems are at best difficult, often to the point of being intractable.

Forestry lies somewhere in the middle of this continuum. Access to a woodlot cannot be controlled as easily as with an irrigation system, but it is much simpler to keep outsiders away from a woodlot than from using a public road (where merely to formulate the issue in such a way seems nonsensical). Participants in a CPRM scheme can see some link between cost and benefit, though not as clearly as with water systems, for there the operation of the system typically depends directly on users maintaining the channels, ditches, drains, etc., with the opportunity cost being the contributions (usually labor) to the maintenance process. With social forestry it is a bit more difficult to calculate benefits and costs, for the the latter are largely opportunity costs in terms of fodder and fuel foregone as a former commons area is turned into a woodlot; for poor households, such costs can loom quite large. Still, the linkage is clearer than with local roads. Sanctions against free riders or shirkers present some difficulties for both irrigation (nocturnal channel diversion) and forestry (poaching), but with roads it does not even make sense to talk about such sanctions in most cases.

Forestry, in short, offers a sort of modal case in CPRM, not as relatively clear cut as irrigation systems, but not nearly as difficult as roads. We can thus have some confidence that in analyzing forest resources we are dealing with a reasonably representative CPR.

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[4] Needless to say, the realities of political economy are omnipresent with respect to water, as with every other aspect of village life in South Asia. My capsule analysis here assumes no large farmers present as free riders.

[5] Though there are at least a few examples, for instance in Sylhet District of Bangladesh, where access can be controlled in the tea estate areas (Schroeder 1990). Octroi (a fee collected on vehicles at entry points to towns where evasion would be difficult) might be thought to be another example, but this unpopular tax is widely being phased out of use.

India's dominance in the CPRM literature is also a kind of advantage in the present inquiry, for it is in that country that the democratic experience has been the longest in South Asia. One should be wary of citing Indian instances as patterns which all others in the subcontinent are willy-nilly sure to follow, or suggesting Indian examples as prescriptive policy models for others to emulate, but even so there is much of value to be gleaned from the long Indian experience with democratic politics. And the same can be said *a fortiori* for the American experience with CPRM: it cannot be translated directly to the South Asian socio-ecological idiom and we shouldn't try to do so, but there is much to be learned from it. I shall be referring to it from time to time in the analysis that follows.

Three strategies for CPR management

Of the three strategies advocated for avoiding Hardin's (1968) tragedy of the commons, democratic politics is compatible with at least two: privatization and centralization. It is much less clear whether democratic politics can be combined successfully with the third approach, local control. Privatization strategies have been a staple of American and British domestic politics in the 1980s, extending into the CPR realm on a fairly large scale, at least rhetorically, in the United States, where numerous voices urged that federal forests, grazing lands and the like be turned over to the private sector (e.g., Hanke 1983; Johnson and Baden 1983).[6] The argument, of course, is that owners would take care to maintain their resources in order to assure their own continued use, whereas public authorities have no such incentive.

But how concerned would privatized CPR owners be to maintain their property, especially if they acquired it at give-away prices? Surely they would not

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[6] The most vigorous and well-organized claim was that of the 'Sagebrush Rebellion' of the late 1970s, which demanded that federal grazing land be turned over to the states and then privatized. Interestingly, when the Reagan administration came to power and appointed Sagebrush sympathizers to positions where they could help advance the cause, the 'Rebels' decided they would rather continue the older arrangements whereby they were allowed to graze cattle on government lands at fees far below comparable market rates (Clarke and McCool 1985). Rent seeking behavior, in other words, predominated over the desire to own the resource. Later on, when government agencies tried to strengthen feeble regulations to effect a minimal degree of environmental protection by reducing excessive overgrazing on public lands (though the grazing program itself — providing an 80 percent subsidy to users when compared with market rates — would continue in place), the grazers mounted a vehement political offensive to continue their benefits (Egan 1990).

put a higher value on it than the market would offer for its produce; market rationality will prevail over ecological rationality, especially if the latter has to be for the long term.[7] And even if private resource owners did find incentive to maintain their property, as in areas of the Pacific Northwest in North America, their doing so would be guided by considerations of sustained yield and social ecology, not by thoughts of 'deep ecology' that would need some moral impetus considerably beyond market motivation to achieve reality.

In South Asia, however, with its strong tradition for state stewardship of forest land (i.e., since the establishment of scientific forestry in the late 19th century), any large-scale privatization is out of the question. Small-scale privatization of CPRs, on the other hand, has occurred both formally and informally in many areas of the subcontinent over the years. In some cases, where *services* are privatized, there have been positive benefits, as with seedling nurseries managed by poor women in Gujarat: the women earn an income and have the incentive to grow as many seedlings as they can sell (Verma 1988). In West Bengal, landless families have been guaranteed usufructary rights over trees planted on state land for a 99-year period; these *patta* rights amount to a *de facto* privatization and the system has proved quite successful (Shah, 1987; see also Chambers et al. 1989: ch 8).

For the most part, though, small-scale privatization has had a less happy history in the subcontinent, particularly where *physical assets* are involved rather than services. Jodha's study (1986, 1990) of more than 80 villages in Western and Southern India that welfare schemes to aid the poor by privatizing CPRs proved more often than not counterproductive. The greater share of land went to non-poor beneficiaries to begin with and those among the poor who did receive land often found themselves unable to manage or even retain their new assets. From the CPR perspective, the land itself tended to suffer as its new owners turned what had been essentially marginal (or even submarginal) land from natural cover into cropped area; the land resource itself, in other words, deteriorated even further than when it had been over-

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[7] In an example that may not be too extreme, given the need for foreign exchange in LDCs, the Chilean government has sold off large areas of 10,000-year old hardwood trees in Tierra del Fuego, at the southernmost tip of South America, for as little as $0.50 US an acre. Discussion now proceeds on selling much larger tracts for perhaps $2.50 an acre (about $6 per hectare). Dismissing ecological criticism of the arrangements, corporate officials claim they plan to rejuvenate the forests, not simply cut and abandon them (Nash 1991). Aside from the gestation period to replenish 10,000-year old trees, the very low investment made to buy the land initially would scarcely seem to provide incentive for anything but to clear-cut and run.

grazed prior to privatization. Equally disheartening, collectively the poor had actually received more benefit when they were able to utilize the CPRs as common land before the privatization had begun.

Informal privatization, of course, has long been a familiar story in South Asia, and it too has tended to benefit those better off. Rural roads in India have a generous right of way, which has provided much opportunity for strip plantations in social forestry activities. But many programs have found that most of that right of way has long since been encroached upon and for all practical purposes been annexed by the adjacent landowners, who are, needless to say, rarely poor. Legally they could be dislodged, but in practical terms it would be extremely difficult to do so. And informal privatization has also hobbled community forestry plantation schemes, as Cernea (1981) notes in his well-known account of encroachments in Pakistan-controlled Kashmir. As might be expected, the more powerful local families were the principal beneficiaries of the expropriation. One may assume that this is a familiar story elsewhere as well.

All these modalities of privatization, it should be underlined, are quite congenial with democratic politics, which does not ordain solutions favorable to the poor or to the environment. Both rich and poor are entitled to play at democratic politics, and, since they have more resources to play with, the rich generally do better at the game. Exceptions would seem to occur when the resource involved is relatively trivial (the Gujarat seedlings) or a strong state is determined to effect and protect the arrangements put into place (as in West Bengal). And desperately hungry families will have little incentive to implement ecologically sound practices to maintain a fragile resource that has been privatized to them when their main concern is survival in the short term.

Centralization strategies for protecting CPRs are also compatible with democracy. Indeed, Hardin himself assumed that his Leviathan would be implemented in a democratic polity determined to preserve its resource base. His prescription for instituting control is "mutual coercion, mutually agreed upon by the majority of the people affected" (Hardin 1968: 27). For that matter, Hobbes' own ideas — often thought of as a recipe for a severely authoritarian state — can be accommodated within a democratic framework. The Leviathan itself, after all, is in the end is made up of and is given its legitimacy by the people, as is so strikingly illustrated by the figure of the sovereign in the frontispiece of Hobbes' book, where he is shown to be composed of lit-

tle human figures. In effect, both Hobbes and Hardin say that the citizenry must agree to give up just enough freedom to keep the peace (Hobbes) and protect the environment from ruin (Hardin), and, once that is done, they are free to do whatever they wish. What is not expressly forbidden is allowed. This is, in a way, the root statement of methodological individualism's policy recipes. Hobbes provides the rationale as follows:

> ...in all kinds of actions by the laws pretermitted [i.e., left uncovered] men have the liberty of doing what their own reasons shall suggest for the most profitable to themselves....such as....the liberty [for men] to buy and sell and otherwise contract with one another, to choose their own abode, their own diet, their own trade of life, and institute their children as they themselves see fit, and the like (Hobbes 1651 [1960: 138-139]).

Hardin's formulation is more concise:

> ...once [individuals] see the necessity of mutual coercion [to protect the commons], they become free to pursue other goals. I believe it was Hegel who said, 'Freedom is the recognition of necessity'" (Hardin 1968: 29).

Of course Leviathan need not be concerned with environmental protection; to the contrary, it can abet destruction as well as preservation. As Herring (1990: 93) observes, "Leviathan must be fed." He cites an appetite for tax revenue and foreign exchange earnings as driving governmental hunger, to which one could add in the case of forestry both institutional tradition and individual greed as additional contributors to a 'predatory Leviathan.' Scientific forestry has taken production and conservation as its basic principles, and the first half of the credo has meant creating revenue for the state, an expectation that has generally been fulfilled.[8] In Maharashtra, for example, forestry was bringing in almost Rs 1 billion by the mid-1980s, which amounted to about 10 percent of all non-tax revenue and 3 percent of total revenue receipts (GOM 1988: 507). In many situations, production/revenue generation and conservation can be practiced simultaneously, but when the two come into conflict, as for example in the outer islands of Indonesia (Gillis 1988[9]), the latter too frequently gives way to the former. And at the personal level, as is well known, a forestry department's duty to conserve the forest is all too often an individual's license to sell it off illegally for bribes to poachers, kickbacks from concessionaires and bidders at timber auctions, etc.

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[8] Revenue for the state is a steady theme, for instance, in Guha's (1989) account of forest management in the hills of Uttar Pradesh.

[9] The problem here is scarcely confined to Indonesia. See Repetto's (1988) comparative study analyzing government forestry policy in several different regions including the United States.

Can there be a 'soft state' Leviathan? Such a term seems to be an environmental oxymoron, for there would appear to be few sectors where soft state governments could be more helpless than in trying to defend CPRs against poachers and pillagers armed with bribes. Yet Bangladesh, which should be an epitome of softness in these matters, has managed to retain the better part of its Sundarbans forest, even including a tiger population estimated at 550 in the late 1980s[10] — a considerable achievement, given a population density about twice that found in Punjab or Haryana and more than three times Orissa's.

Certainly in India an environmentally conscious Leviathan has been evident at times, as with the Silent Valley controversy, in which the central government in the end overrode local interests wishing to build a dam complex (Herring 1990: 100). The Chipko movement has been quite successful in arousing a national interest in its cause (Shiva and Bandyopadhyay 1988), and this has surely played a major role in whatever success it has enjoyed to date. As a third example, if Baba Amte and his ecological allies opposing the Narmada dam are to prevail in the current see-saw struggle against strong state-level support for construction, it will have been because they were able to mobilize a sufficiently powerful national constituency against the dam.[11] Still, achievements of this order are rare; soft Leviathans tend to be as flabby at protecting their resources as they are at everything else.

One last alternative is the donor Leviathan. As ecological concern mounts in the industrialized countries, increasingly voices are heard to demand an end to environmental despoliation in such tropical areas as Brazil and Indonesia. In LDCs where international donor contributions form a large part of the development budget (about 80 percent in Bangladesh and Nepal), donor preferences can indeed get incorporated into "host country" development plans. But to the extent that they steer policy to ecological goals, such donor preferences may well be moving counter to national democratically based national desires. Afer all, donor-instigated policy preferences are often highly resented in any kind of 'host country' regime (see e.g., Sobhan 1983 and 1990). Again democracy and environment may be in opposition.

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10 See Chaffey et al. (1985: 185) on general protection, Seidensticker and Hai (1983) and BO (1987) on the wildlife. On the state's role in protecting the Sundarbans, cf. Blair (1990).

11 The furor surrounding Narmada has been great. See Mukta (1990), Baviskar (1991), and Mookerjee et al. (1991). The controversy has attracted international attention as well; see Alvares and Billorey (1988), Crossette (1989) and Hazarika (1990).

CENTRE FOR ECOLOGICAL SCIENCES

The third strategy for avoiding a tragedy of the commons is local management of CPRs. There is considerable controversy concerning whether users of a CPR can organize and regulate themselves on a strictly rational basis to maintain a CPR, or whether some social ethic or 'moral economy' constitutes a necessary part of successful CPR management.[12] That argument lies beyond the scope of this essay, but whatever the case, there are many examples of viable CPR management systems, some of which have endured for centuries.[13] Is democracy compatible with such systems? If democratic structure and CPRM systems are combined, what is likely to be the effect on the rural poor? The remainder of this essay will be concerned largely with these questions.

Decentralization and democracy

The primary vehicle for bringing democracy to the local level has been one form or another of decentralization. As might be imagined, given all the attempts at decentralization, the literature on the topic is voluminous (e.g., Conyers, 1984 and 1986), but for purposes of this essay we may define it as centrally initiated efforts to move authority and responsibility for significant governmental activity downward to local statutory governmental units, along with accountability of those units to the local populace through democratic elections. In the recent South Asian context, the panchayat systems, of

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[12] Olson (1965) would hold that a CPRM scheme could be completely explained in terms of a rational calculus, and most of Ostrom's (1990) thinking proceeds along similar lines. On the empirical front, Wade (1988: 195-196) would appear to confirm such thinking when he observes that participants have no thought of any higher social good in mind when behaving along cooperative lines. See the discussion in Herring (1990: 93-94) on this issue. On the other hand, Scott (1976, 1985), from whom the 'moral economy' phrase comes, would doubtless insist that a collective moral conscience is a principal motivating factor in CPRM. Such a view finds empirical support from Bromley and Chapagain (1984) and Guha (1989).

The debate is an old one in political theory. One side goes back to Hobbes and his insistence that man is first of all an individual, and it comes down through the concept of methodological individualism that influences much of Ostrom's thinking. The other side traces back even further to Aristotle and Aquinas, who posited that man was first a social being and only after that an individual. To add a sidenote, it is both interesting and somewhat bizarre that Thomas Hobbes can be seen as the key progenitor of both the individualism justifying capitalism and the authoritarian state needed to control capitalism's environmental excesses.

[13] BOSTID (1986) offers a large range of examples. For a series of case studies on water management systems in Nepal going back 200 years and more, see Pradhan (1989).

India and Nepal and the upazila structure of Bangladesh have all been decentralization schemes.[14]

Most of the analysis of decentralization has been quite negative, holding that, whatever the intent may have been in establishing them, local government schemes were little more than a formula for funnelling resources from above into the hands of local elites. Gunnar Myrdal's *Asian Drama* (1968: 1339-1346) is the most widely cited critique, but it is only one among many, and contemporary analyses tend to follow the same tack (e.g., more recently, Hirway, 1989). For Bangladesh, Pakistan and Nepal the story is more or less the same.[15] All more or less agree with Theodore Lowi, who concluded in his landmark study of the American experience that "decentralization is only carte blanche for vested interests" (1979: 259).[16]

There is some evidence that the lower strata can gain access to local government, as in West Bengal, where the poor and landless have made significant headway in rural panchayats, though it should be added that having a state government in power friendly to their cause (i.e., the Communist Party-Marxist) certainly helped (Lieten, 1988). This is not a combination of circumstances that can be counted on to occur often. One close observer of the Indian rural development scene, C. H. Hanumantha Rao (1989), concludes that the only reliable way to assure representation for the poor at local level is to restructure the panchayat system altogether along syndicalist lies that would allot representation by interest group and class. Rao's is an intriguing idea and one that — given effective and dedicated monitoring from the outside —

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[14] For an account of the first several decades of South Asian decentralization, see Blair (1982); for an update on Bangladesh, cf. Blair (1985).

[15] On Bangladesh, see for example, Khan (1987) and Rahman (1988); on Nepal, Bienen et al. (1990). In recent years, analysts concerned with democracy in Pakistan have understandably focused on the macro level, but the story at micro level seems much the same as that for Bangladesh and Nepal. See, for instance, LaPorte (1991: 124-127).

[16] At the macro-level, democracy's track record is somewhat better, at least in allowing non-elites into the system, which is a first step toward greater equity. See, for instance, Rudolph and Rudolph (1987), as well as many of the essays in Frankel and Rao (1989 and 1990). It should be noted, though, that these 'non-elites' are essentially *middle* castes and *middle* peasants, not the poor. There is also evidence that the poor are gaining greater representation at the state level, albeit very slowly and only in some places like Maharashtra, where Dalit (Scheduled Caste) movements have been active. See Joshi (1986), Omvedt (1988) and Markhandikar (1990). Whether the poorest of the poor can actually take a leadership role (as opposed to the ablest among the poor, who tend to be more well off to begin with than the very poorest — an effect sometimes known as 'creaming' — is an unresolved matter. See Blair (1982) on this issue in the American context.

might prove to be a viable way to give representation to the poor.[17] But absent a very thoroughgoing change at upper levels in the Indian policy, interest in the necessary legislative changes to institute his reforms will be hard to find.[18]

Why decentralize at all, then? The principal reason has been that centralized regimes simply do not know what to do for the countryside. Even in a nation as relatively homogeneous as Bangladesh (to say nothing of India, Nepal and Pakistan), local variation is too great for uniform policies decreed from the center to work everywhere. Local initiative and discretion are needed to make things function, a reality which implies some sort of decentralization. Yet on the evidence, decentralization and distributional equity don't mix especially well.

All this would not appear to augur favorably for CPR management systems, though if such entities are to succeed they must be founded on some kind of local command over local resources. Historically, this authority has been exercised autonomously from the reach of central governments. Pradhan's (1989) venerable irrigation systems in Nepal, Guha's (1989) traditional forestry management systems in Uttar Pradesh and Wade's (1988) dry season grazing commons systems all grew up over time independent of state authority, in an era when the state was not much concerned with local-level CPR matters.

Some systems continue on that basis. It is doubtful that the state will have much to say about Wade's grazing commons, since its concerns are focused on what it sees as the primary use of the land — the cropping season when rice is grown on formal privatized holdings. In Guha's area, however, trees were not a subsidiary, off-season activity but rather the main use for large tracts of land. And since the land had not been privatized earlier under either British or non-British tenure systems, it was in effect up for grabs when scientific forestry entered the scene in the late 19th century.

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[17] In some ways Rao's proposal is reminiscent of Ziaur Rahman's *gram sarkar* scheme set up in Bangladesh around 1980 (see Blair 1985). Syndicalist village councils were established, but the system was scrapped after his death in 1981 without having had a serious test. For Nepal a similar approach has been mooted by Goutam (1991).

[18] The voters' response in the May-June 1991 elections to the Janata Party's support for the Mandal Report proposals is probably indicative here. Social reforms finding little support at the macro-level are unlikely to receive much at the micro-level either.

Pradhan's water schemes complement and enhance the cropping already in place on private land, but they do not interfere with it. Thus they would seem more similar to Wade's grazing systems than to Guha's forests. But in fact the state took considerable interest in them during the long period (1960-90) of strong monarchical rule in Nepal, federating water user groups into an apex organization at the central level (the Social Services National Coordination Council) in order better to control them.

In many cases the state itself initiated CPR management schemes. Most efforts at local-level forestry in India have been begun by the state (usually as part of a donor-assisted development project) and managed by units of local government. Typically the forest department selects a commons area in a village, signs an agreement with the village's statutory panchayat, takes the land over to plant seedlings (most often a fast-growing species like eucalyptus or leucaena), supervises the early growth of the plantation, and then seeks to turn it over to the statutory panchayat, which would guide the trees to maturity, harvest them and allocate the proceeds.[19]

For the most part, these community woodlot enterprises have not been very successful.[20] First, they tend to represent forestry department priorities such as fuelwood and timber, rather than user wants like fodder and thinnings. Second, to the extent that panchayats do in fact manage woodlots, their operations reflect the views of the village elites who control them rather than the needs of the poorer strata who are most in need of what the woodlot could produce. Thus panchayats see woodlots as income generators more than as resources to meet public needs; they would prefer to auction off the produce

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[19] The actual details vary from state to state; in most if not all of them the forest department will reserve a share of the proceeds for itself, following the tradition of bringing a return on its activities to the state exchequer. There have been some non-governmental forestry schemes as well, such as the Bharatiya AgroIndustries Foundation enterprise in Maharashtra (see for example Hegde and Abhyankar 1986).

[20] One must be careful to distinguish the community woodlot components of social forestry projects from the farm forestry components, which have almost invariably been extremely successful. Here seedlings are given or sold to farmers to plant on their own land, to grow and dispose of as they will. In most if not all social forestry projects, the number of seedlings planted on private land has greatly exceeded expectations (see e.g., Blair 1986). The central privatization argument that owners husband their property wisely would seem to hold here. Most of this paragraph and the next in the text are derived from Arnold (1990; though see also Cernea 1989, and Gregersen et al., 1989: 133-135 &ff).

— often to outsiders who can pay the best price — rather than to distribute it free or at a subsidy to villagers.[21]

Often panchayats fear the distributional squabbles that would ensue if they were to take over the woodlot and so become reluctant to do so. Generally in such cases the forest department is all too willing to continue managing and controlling the woodlot anyway, meaning that the relationship between government and citizenry with respect to resources remains the time-honored one of officials conniving with local elites to despoil and pillage.[22] A final obstacle is tenure status. For instance, community woodlots are often established on revenue land, on which ownership of trees is at best unclear. Legal cutting can be difficult, which is a good reason to leave things in forestry department hands and fall back on illegal cutting.

What if the poor did gain a greater voice — or even a controlling one — in local governments? How likely would they be to demand sound CPR management practices? In some areas like Guha's Uttarakhand, where a deep and widespread social movement exists, panchayat members of any class might well feel similar social pressures to uphold the Chipko ethic. But the real test would be in the far more numerous areas that lack anything resembling a Chipko: would the poor be any more ecologically conscious in managing CPRs than the rich? One can think of reasons to answer affirmatively (being more dependent on CPR resources, the poor would be more insistent on practices assuring sustained yield) as well as negatively (the poor are no more immune to temptation than others, and village CPRs would offer opportunity for individual gain). In the absence of present evidence, however, the question will have to remain open as to whether the poor would make better public CPR managers than those now in charge.

User-managed CPRs

What *does* seem to work in managing CPRs is user groups that are *not* local governmental units. They include only those that want to participate, who thus have a direct *common material interest* linking them together, rather than only a common (and usually arbitrary) geographical *jurisdiction*. User

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[21] Needless to say, a strong motivation for generating panchayat income is to siphon off the proceeds to those in control.

[22] For a good illustration of the process, see Blaikie et al. (1986), who focus on common lands in Tamil Nadu.

groups may be recognized by government and even assisted by government (or foreign donors), as with Pradhan's irrigation groups (1989),[23] but their foundation and legitimacy derives in each case from the base of users.

There are several good reasons for this. First, user groups are generally smaller than jurisdictional systems, and their members are more homogeneous. They tend to be more alike one another in terms of class, ethnicity, occupation, etc., than would be the entire population covered by a panchayat or statutory village council. But most importantly, as indicated in the previous paragraph, their principal reason for joining the group in the first place is their common interest in managing the CPR in question. Second, this homogeneity means that the free rider problem hobbling statutory bodies can be eliminated. When a statutory panchayat manages a community woodlot, it is difficult to prevent villagers who don't contribute to its sustenance from trying to share the benefits, and the realization of this danger keeps many if not most potential contributors from participating. When a user group manages the resource, these problems are greatly reduced.

Third, because of the smaller size and elimination of free riders, benefits and costs become clearer to the participants in a user group; they can more readily conduct their personal benefit/cost analyses and are more likely to find the ratio sufficiently positive to make it worthwhile participating. To put it another way, participants' transaction costs become lower (cf. Runge 1986: 47 &ff). And fourth, within a smaller and more cohesive group, it is easier for the cultural norms of a moral economy to complement the purely rational economic calculus of methodological individualism.

There remain several things that are still not clear. One is the role of local elites. Wade finds (1986: 249) that elite dominance is helpful, perhaps even essential, in his CPRM councils, because elites, having more at stake, are willing to put their superior personal resources to work at making the scheme succeed. On the other hand, elite dominance can also torpedo any hope of CPRM success, as Cernea reports (1981 and 1988). A second cloudy issue is group size; there is some evidence for a U-shaped relationship between size and success, with smaller and larger groups doing better than middle-size ones (Chambers et al. 1989: 90-91; see also Easter and Palanisami 1986: 218-220). And third, there may be some optimal degree of CPR scarcity that will give the right incentive for cooperation: an abundant resource obviates the

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[23] See also Hilton (1990), for several detailed case studies of similar groups in Nepal.

need to conserve, while an exhausted one makes it useless to do so, but a middling scarcity offers enough to reward conservation efforts (cf. Arnold and Campbell 1986: 434).

It might well appear that the central point here about user groups working more effectively at CPRM than statutory local government units is scarcely profound. Like so much in social science, it in many ways represents distilled common sense rather than rigorous and esoteric reasoning. Yet it was not at all obvious when India and Nepal began their community forestry programs. In the words of one long-term forestry advisor in Nepal, "It took us ten years to figure out that the user group was the right structure to manage local forestry resources here rather than [statutory] panchayats."[24]

To revert back to the earlier discussion of forestry's place on the CPRM spectrum, what is occurring when user groups are employed is that the whole process in effect 'moves' toward the irrigation end. Access, cost/benefit calculations and free rider problems all become cleaner and easier to deal with. Managing forestry CPRs, in other words, becomes more like managing small irrigation systems.

Democracy and deep ecology

Can democratic politics support 'deep ecology?' If we define deep ecology as preservation of the entire ecosystem, insisting that each species has an equal right to survive and that public policy should support that right, the answer must be a cautious one under any circumstances. In the United States, the tension (and at times struggle) between conservationists and preservationists (now often referred to as deep ecologists) has existed since the end of the 19th century. The former trace their modern roots back to Gifford Pinchot, coming down through scientific forestry, whereas the latter go back to John Muir and then trace through Aldo Leopold to present day groups like Friends of the Earth, the Sierra Club, EarthFirst! and Greenpeace.[25]

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[24] Interview with the author in Tulsipur, Nepal, 26 March 1991.

[25] For a quick summary of the differences and their history, see Klee (1991); some participants in the ecology movement find a critical division between the four organizations mentioned as examples in the text, seeing the first two as essentially conservationist with only the last two as truly concerned with deep ecology. For a more detailed analysis of the current tensions between the two sides, see Sale (1986).

At times the deep ecologists can gain a chance to influence policy, most often through a combination of litigation and mobilization, in which they are able to focus the attention of a national constituency on a single local issue like the current spotted owl controversy in the Pacific Northwest. The preservationists can draw on this national audience in endeavoring to preserve the tract of aged conifers that serve as the last habitat of this endangered species, while those pressing to use the resource have only an essentially local strength that rests on local concern for jobs, profits and economic growth, goals that far outweigh any worries about a potentially endangered species.

South Asia is similar in many respects. Deep ecology may find some resonance in Sundarlal Bahuguna's philosophy and the Centre for Science and Environment in New Delhi, but at local level it is livelihoods that motivate people to action, and local democracy must be expected to reflect such concerns. Nor can user groups be expected to become interested in issues of deep ecology, at least not without considerable educational evangelizing for the preservationist cause. There is little sign on the immediate horizon of the "deep ideational shift" that Herring (1990: 100) sees as necessary for the preservationist agenda to make any serious headway in a democratic polity.

A deeper problem may lie within the theory and practice of common property resource management itself. Oakerson (1986: 13) defines CPRM as well as anyone when he states that "All common property...faces one common problem: how to coordinate individual users to attain an optimal rate of production or consumption for the whole community." Clearly he refers to the "whole community" of people, not that of life forms generally. The "ideational shift" that will be required is profound indeed.

On the social ecology front, however, things are less daunting. Conservationism has found some audience in democratic India at the macro level, and although the track record with statutory local government units in South Asia is rather less promising, it does quite well in user group CPRM systems. When those who use a common property resource can assume responsibility for maintaining it (subject of course to various conditions as laid out in this essay), they can and will do so. What is supposed to make privatization succeed with individuals and corporations can also work with user groups. The development policy implications are certainly worth exploring.

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GRAZING LANDS : NEGOTIATING CUSTOM AND LAW

Rita Brara

While legislation blazes the statutory direction of change, conventions can and do follow a different time and logic. The divergence of unwritten conventions from legislative Acts in India is well-documented in aspects pertaining to the family, such as inheritance practices and age at marriage[1]. This chapter investigates the role of conventions in matters pastoral.

In the first section, we delineate the changing techno-environmental limits to livestock-rearing and the dynamic conventions evidenced in the pursuit of animal husbandry by the residents of a tehsil in Rajasthan. The second section examines the constitution and composition of both the formal gram panchayat that is the legal custodian of de jure village pastures(charagah lands) and the informal committee of mukhias (heads) that is conventionally perceived by the village residents as the custodian of its commons. The functioning of the informal committee in relation to village commons is investigated in the third section. The last section compares the findings from this area with evidence from other regions and concludes that while conceptions of social justice may underlie both conventions and laws, in different situations one or the other may become dysfunctional.

Our findings in this chapter are based on a rainfall-scarce region where villagers depend upon a combination of one-crop agriculture and animal husbandry for their livelihoods. We focus upon the agro-pastoralist activities of inhabitants in Lachhmangarh tehsil of Sikar district. Though Sikar is classified as an arid district, it is easily distinguishable from the extremely arid districts of western Rajasthan by both precipitation value (Map I) and floristic composition[2]. The extent of aridity varies within the district as well. The Aravalli hills

1. See, for instance, Goode (1963); Sharma(1980).
2. Meher-Homji (1985).

RAJASTHAN
SHEPHERDS' MIGRATION ROUTE
FROM LACHHMANGARH TEHSIL

bifurcate Sikar district into the sandy, desert tracts of the west and the hilly areas of the east (Map II). Both the quantum and the reliability of rainfall decrease as one proceeds from the eastern tehsils of Neem-ka-thana, Sri Madhopur and Danta Ramgarh toward the tehsils of the west--Sikar, Lachhmangarh and Fatehpur.

Historically, the tehsils of the east formed a part of the Jaipur state in the main, while the western tehsils of this district fell under the Sikar thikana (chiefship). The thikana itself was formerly a constituent of a larger political entity that owed a formal allegiance to the Jaipur State.[3] It was congealed in popular consciousness as the Shekhawati[4] region and included tracts in the neighbouring districts f Churu and Jhunjhunun as well.

I

THE PRACTICE OF TRANSHUMANCE

By contrast with settled agriculture that was farm-based and immovable, the mobility of livestock enabled men to augment their grazing resources across long distances. The economic limits to livestock-rearing were set by the availability of pasturage and drinking water that often gave rise to a seasonal nomadism or what is specifically described as 'transhumance'[5] in arid areas.

In Lachhmangarh tehsil, the seasonal outmigration in search of forage was confined to those who tended rewars (a flock, defined in this region as comprising 50 or more sheep and a few goats). While the inhabitants recognised balads (a herd of approximately 20 cattle) and tolas (a unit of more than 10 camels) as livestock definitions of importance in the districts of Churu and Bikaner further west,

3. The status of the Shekhawati chiefs vis-a-vis the Jaipur State was a matter of considerable debate and turmoil in the post-British period - the State of Jaipur deemed them as subordinate chiefs while the thikanedars insisted that they were autonomous rulers. For details, see the Wills Report (1935).

4. The Shekhawati region takes its name from Shekhaji, a valiant chief who hailed from this area. Tod (1832).

5. By contrast with nomads, those who 'transhume' have a fixed place of residence to which they return. For details, see Hills (1966).

transhumance for the residents of this tehsil was associated with the nurture of rewars, in the main. It was believed that sheep could convert the perishable pasturage into wealth by grazing on common tracts while other livestock required browse, tree loppings and occasional dry forages.

The inhabitants of Lachhmangarh viewed rewar-husbandry as an economic activity that brought in good returns for a hard life. The practice of transhumance was largely prevalent in the villages adjoining Churu district that had low water tables and a lack of irrigation facilities. It was not an activity restricted to specific 'nomadic' castes. The majority of outmigrating shepherds were, in fact, Jats followed by Balais[6], Rajputs and Charans[7].

Environment as experience

The villagers' ethno-science was intrinsically related by the ideology of rights in common to ecologically sound animal and crop husbandry. The range of transhumance was defined with reference to seasonality, natural resources and forage conditions as experienced by the livestock-rearers. The seasons were broadly distinguished as chaumasa (four months of the rainy season), siyala (winter) and unnyala (summer). If we begin the migrating shepherd's calendar from Sawan (the first month of chaumasa), the route toward Bikaner indicated halts at talaabs (ponds) where the first few showers of rain had replenished the ponds. The re-charge facilitated the watering of transhumant livestock. The suffix sar[8] often attached to the place-names en route to the west signified the presence of such talaabs (Map II). This route terminated in Bikaner district, an ecological zone that was renowned for its nutritive sewan (Lasiurus sindicus) grass. The scarcity of water in the western region restricted transhumance to the rainy season. The

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6. The Balais, classified as a 'scheduled caste', constituted an occupational group of agricultural labourers and small farmers in this region. In the past, they were reported to have been weavers. For details, see Mathur (1986) and the Census of Marwar (1985).

7. Charans were the former bards of the Rajputs and often the custodians of their genealogies. Tod (1832).

8. The suffix sar denotes a lake/pond. Rajasthani-Hindi Dictionary, Vol. III (1984).

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natural diversity of vegetation type across districts, however, could be utilised in a seasonally specific design.

An alternative route during chaumasa took the transhumant herders to the hills in the eastern tehsils of the district itself. The streams in this area came alive during the monsoons. Agriculture was precluded on this hilly tract though the natural run-off of rain-water afforded the growth of abundant pasturage.

The migrating re r-tenders returned to their villages about October after the kharif crop was harvested, shortly after Diwali[9]. During siyala (winter), the sheep fed largely o the crop residues in the village itself. The private fields, too, gradually turned into an open grazing area. The transhumants' onward journey was resumed around Holi[10], this time toward the adjoining State of Haryana. Th irrigated two-crop agricultural pattern of this region enabled the feeding of sheep on the residues of the rabi harvest and their ready watering. At the same time, the Haryana farmers welcomed the shepherds and their flocks for the fertilizer that the sheep droppings provided. Their homeward journey started in jyeth (mid-June) after the ploughing of fields in Haryana had begun. The transhumants' cycle began anew with the monsoons.

Migrating shepherds attuned the length of their journey to the seasonal availability of forage and water and the cycle of festivals. Their calendar was flexible and attempted grazing where the nutritional quality of grasses was suitable[11]. For the transhumants of Lachhmangarh tehsil, the range of movement during chaumasa was often restricted to Fatehpur beed (a forest/grass preserve) in the past. This beed, spanning over 6,700 acres of land in the adjoining tehsil of Fatehpur, was taken over by the Forest Dept. and subsequently converted into a sheep breeding farm for crossing the Russian, Merino and the American Rambuillet sheep with indigenous breeds. Local resistance to this move by the govt. had

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9. Diwali: a post-harvest festival of lights.

10. Holi: a popular festival in the month of March.

11. The transhumants' followed what Valentine (1967) describes as a 'seasonal suitability' model.

led to arrests but the govt. pursued its plans for initiating a 'model' farm[12] and a programme for the upgradation of sheep breeds in what was a grass preserve shared by the inhabitants of the tehsil.

Villagers in the vicinity of the beed had an idea of the importance of this natural resource for the area's livestock-rearers and a sensitive estimate of its seasonal fodder output. They debated the wisdom of the govt. in turning it over for the production of 500 cross-bred rams per year (ratio of several acres of grazing land per sheep) against opening the beed's ample pasturage to the region's sheep-rearers. Their cost-benefit analysis was at odds with the state govt.calculations.[13]

Despite the govt's. closure of the beed to graziers, neighbouring villagers broke in from less-known routes. Trespassers from adjoining villages preferred to pay the penalty on being caught to relinquishing their claims to the pasturage that they perceived as theirs by a prior right.[14] Locked in police cases against shepherds and confronted with the soft-pedalling of decisions adverse to the influential local inhabitants by the political representatives, the managers of the sheep farm had been unable to check what was, legally speaking, a trespass.

The battle over the beed's pasturage raged primarily between clout-wielding shepherds from villages fringing this reserve and the Sheep Farm authorities. However, the seasonal use of this pasturage by the transhumant graziers of Lachhmangarh tehsil was now, more or less, closed. Migratory shepherds still stopped in the beed en route to Bikaner but could not utilise its pasturage for the entire duration of the rainy season.

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12. Gazetteer of Sikar district (1978).

13. The govt's. attempt at promoting cross-bred sheep, moreover, has met with a singular lack of success, as we shall discuss later.

14. The revenue from penalties on this score amounted to Rs.25,000 in 1985.

Face-to-face conventions

The viability of the transhumant's enterprise across the politico-administrative divisions of districts, states and, sometimes, nations[15] rested on a web of social relations and local conventions. These bases were taken into cognisance before embarking on the rewar-grazing sojourns.[16]

The bonds of kinship were utilized by transhumant graziers. Affines (in-laws in popular parlance) provided thikanas (a place to stay) for the migrating shepherds en route to Bikaner, for instance (Map II). Here, graziers were assured of local protection. Longer halts and penultimate destinations on the transhumant route were often associated with such hosts who ensured both grazing and domestic facilities. Affines, moreover, had reciprocal grazing rights in each others' villages.

The tolis (groups) of migrating graziers in this area were frequently a combination of Jats, Charans, Rajputs and Balais. The extensive marriage networks of the Rajputs and Charans that stretched into other districts were advantageous for Jats and Balais who had marriage circles of a relatively limited range. A vertical solidarity between diverse caste members of a village/neighbouring villages was forged in this process. The conventional access to the grazing lands of affinally related villagers was a means of drought-proofing, even for the settled villagers, since the incidence of rainfall and fodder output was variable between villages.

Ties of common residence united the rewar-owners with the other livestock-rearers of the village. During chaumasa, the livestock of the village were confined to the village's grazing lands, since the cultivation of the kharif crop precluded the use of farms as pastures. It was precisely at this juncture that the rewar-owners outmigrated attracted by the abundant vegetation following the rains and simultaneously relieved the pressure on the village-level pasturage. It

15. It is popularly believed that cattle-herds heading westwards from Sikar are en route to Pakistan.

16. Cf. Sandford (1983).

was primarily those with fewer sheep who could then graze on the common pasture-land of the village.

The tolis of transhumant shepherds often belonged to a single village or else banded together with shepherds of neighbouring villages before they began their journeys. Tying up with intra-village households was looked upon with favour, since it restricted the reciprocal grazing facilities in siyala (winter) to the common affines of the village as a whole and reduced the number of 'outsiders'.

The congruence of the economic interests of transhumants and cultivators was, especially, apparent in their sojourns to Haryana in unnyala (summer). The assured residues of the rabi crop and an ample supply of water for the transhumants and organic manure for the hosts made it equally attractive to both parties. However, the Jats of Lachhmangarh tehsil considered it desirable to forge rishtas (relations) with the Jats of Haryana in order to buttress economic interests with kinship ties, though, so far, such marriage connections had not materialised in this area.

The movement toward Bikaner and the hills of the district itself, conflicted with the interests of local cultivators and livestock-rearers, as formerly unculturable lands were put under the plough. Villages which were not connected by kinship links had begun to demand a grazing fee for the use of their pasturage[17]. While transhuming on village commons had become costlier, new complementarities had arisen in the use of the private crop residues of Haryana farmers and the fodder requirements of the rewar-owners. Conventions adapted themselves to changing circumstances and technologies and their flexibility indeed underscored the contemporary viability of transhumance.

Expressions of village ecology : the johada

Just as the transhumant livestock-rearers of Lachhmangarh tehsil perceived the constraints and potential of the wider ecological region, there was a recognition of the village-level environment that bore the

17. Cf. Jodha (1975).

impress of a collective consciousness. The depth at which water was available, the floral indicators of soil fertility, the means of provisioning against wind erosion and shifting sand-dunes were commonly attested phenomena. Striking, for our purpose, was what the villagers described as a johada (a pond and its catchment area) that was conventionally used for grazing animals.

Every depression in the village in the past had been deployed to catch the natural run-off of rain-water. During the chaumasa, especially, the johada provided a convergence of watering and grazing facilities for livestock. The johadas, it had been reported, were a "blessing in several ways to the village people"[18]. Here, the khejri (Prosopis cineraria) trees grew in a natural abundance. Cutting even a twig of the johada's khejri trees was considered to be sinful.

The predominance of khejri trees and pala (Zizyphus nummularia) bushes, in local wisdom, was taken to be a positive indicator of soil productivity[19]. Thus, the land of the johadas was evidently fertile. Yet, it was not brought under the plough but was reserved as a sacred tract. Khejri trees, occurring in the fields, were utilised for the more profane purposes of fire-wood and forage.

Table 3.1 : Decadal change in human population (1901-1941)

(per cent)

Years	Sikar district	Lachhmangarh tehsil
1901-1911	+ 0.6	+24.0
1911-1921	- 1.5	- 1.0
1921-1931	+12.7	+13.0
1931-1941	+17.9	+10.0

Source: Assessment Report of tehsils, Sikar and Lachhmangarh (1940).

Note 1 : This information is confined to the 102 khalsa villages of the tehsil's 145 villages.

18. Note on the Assessment report of Thikana Sikar (1940:12).

19. Fields that had a higher number of khejri trees per bigha were assessed by revenue officials of this tehsil at a higher rate than fields that had less natural produce and, by inference, a lower quality of soil. For details, see Note on the Assessment report of Thikana Sikar (1940).

The politics of scarcity — land-mark one

The first threat to the expression of cultural ecology as it had evolved till this point came from the continuous increase in population after the 1920s (Table 3.1). On the one hand, grazing lands in the village were increasingly restricted to the johadas as uncultivated lands and old fallows came to be tilled. At the same time, exclusive mental boundaries demarcated lands and johadas as belonging to one village or the other. The unceasing demand for fodder moreover, gradually loosened the injunction against the coppicing of khejri trees growing in the johadas.

On the other hand, the rise in the human population occurred in a context that enabled the jagirdars/chiefs to limit the cultivators' prior access to the forage and other natural produce of the uncultivated areas. The competition for arable land encouraged the jagirdars to make over the former grazing lands to cultivators for a monetary consideration. Their agents and revenue contractors (ijaredars), increasingly staked their claims to the natural forage and timber of uncultivated areas (apart from a share in the straw and grain produce of cultivated fields). Taxes per head of livestock[20] and/or grazing taxes[21] (ghas mari; pan charai) were introduced by the jagirdars in the transformed context of an adverse cultivator : land ratio that left farmers with the option of eviction or compliance. This land-mark in the inhabitants' history found an expression in the protest movements launched by the peasants in the period 1924-1947[22]. The growing dissent came to be known as the 'Jat agitation' in the Shekhawati region[23].

The first phase of resistance to the fresh demands made by the jagirdars at Sikar led to enquiries into the rights and obligations of cultivators vis-a-vis their overlords that were initiated by the Jaipur State[24]. The renewed agreement between cultivators and the Sikar

20. Singh (1964).
21. Jodha (1986).
22. Vigat No.9; Ram (1986).
23. Assessment report of tehsils Sikar and Lachhmangarh (1940).
24. See, for instance, Captain Webb's report (1935).

thikanedars was based on a land survey of 102 khalsa[25] (i.e. the chief's) villages in Lachhmangarh tehsil (as well as in the Sikar and Fatehpur tehsils that formed a part of the Sikar thikana)[26]. It took the shape of the 1940 'land revenue settlement'.[27]

However, jagir villages (i.e. those which conveyed their revenues to the jagirdars subordinate to the thikanedars) and muafi villages (that were exempted from revenue payment) remained outside the purview of this 'settlement'. The levies on livestock and grazing, too, continued unabated. Significant for our study was the tussle over who had the exclusive right to the now scarce natural produce of the johadas - the jagirdars, ijaredars,[28] the patels[29] of the village or all the villagers.[30] A diversity of arrangements for sharing was in evidence but the frequent agitations by the cultivators kept the situation restive until Independence in 1947. Shortly afterwards, in 1952, the abolition of jagirdari[31] and laag-baags (taxes of diverse nature) concluded the second phase of resistance by the cultivators.

Subsequently, the modus operandi in the management of village johadas crystallised in what was, more or less, its contemporary form. Regulations regarding the rights over common pastoral produce and sanctions against their contravention were decided and implemented by a village-level committee of mukhias (heads). Proceeds from the yearly auctioning of loong (the valuable fodder of dried khejri leaves) from grazing lands were utilized for the interests of the village as a whole and especially, for the maintenance of the village sandh (stud-bull). This annual coppicing was not harmful to the matured trees. The uncompromising protection of the khejri was later limited to portions of

25. Khalsa villages denoted villages which turned over their revenues directly to the chief of the thikana.
26. Assessment report of tehsils Sikar and Lachhmangarh (1940).
27. ibid.
28. Ijaredar: contractor.
29. Patel: the hereditary title of a revenue intermediary.
30. Singh (1956).
31. ibid.

the johadas earmarked as banis[32] (that is, land consecrated to a deity). Many villages in the tehsil had a few tree-rich acres conserved in this manner.

II

THE FORMAL AND INFORMAL GRAM PANCHAYAT: VILLAGE-LEVEL EVIDENCE

In the 1950s, about the same time that the villagers had struck a new balance regarding the rights and utilization of the produce from village johadas, the govt., too, legislated upon who should be the custodian of village grazing lands.[33] The unit demarcated by the govt. for the management of charagah was, and still is, the gram panchayat. Contrary to what its name suggested, this aggregation coincided with the village in 4 instances out of 37 in Lachhmangarh panchayat samiti (Table 3.2). A comparison with the neighbouring panchayat samiti of Fatehpur indicated a similar trend.

Table 3.2 : Composition of gram panchayats

No. of villages in gram panchayat	Lachhmangarh panchayat samiti	Fatehpur panchayat samiti
One-village	4	2
Two-village	3	3
Three-village	17	13
Four-village	8	6
Five-village	2	6
Six-village	2	3
Seven-village	1	1
Eight-village	-	-
Nine-village	-	1
Total	37	35

Source : Panchayat records.

32. In other parts of Rajasthan, such sacred groves are also known as oran lands.

33. Rajasthan Panchayat Act, 1953, and the Rajasthan Panchayat Samiti and Zila Parishad Act, 1959.

The official gram panchayat covered three villages, on an average, spreading over as many as seven villages at the extreme, in the area of our study (Map III). It was a unity forged by State intervention, the creation of a statute, based on population size and what the govt. considered to be political decentralisation rather than a corporate unit that corresponded to the inhabitants' conceptions. The gram panchayat, insofar as it was recognised as an entity in Lachhmangarh tehsil today, expressed the electoral dimension of its constituent villages and was a conduit of the State-aided development schemes. Except for four villages in Lachhmangarh tehsil where the gram panchayat was co-terminus with the village, the gram panchayat as it was presently constituted was not synonymous with a village panchayat.

Khedi Dookiya was a part of a four-village gram panchayat that included Bhooma, Dantujala and Baswa. Bhooma, the village with the largest number of inhabitants, was the head-quarters of the gram panchayat. Khedi Dookiya and Dantujala were villages of middling population size in this tehsil whereas Baswa was a small village. The gram panchayat headquarters was privileged by the access of information pertaining to govt. schemes and programmes. The gram sabha meetings that concerned, for instance, the identification of 'beneficiaries' under the Integrated Rural Development Programme in the four villages of the gram panchayat were held at Bhooma itself. The inhabitants of the other villages were not able to participate equally in the proceedings by virtue of both distance and ignorance about the matters mooted for discussion at the gram panchayat head-quarters. Again, the facilities of middle schools or govt. dispensaries, for example, were often undertaken at the head-quarters village only and it was presumed by the planners that their access to the other villagers of the panchayat could be taken for granted.

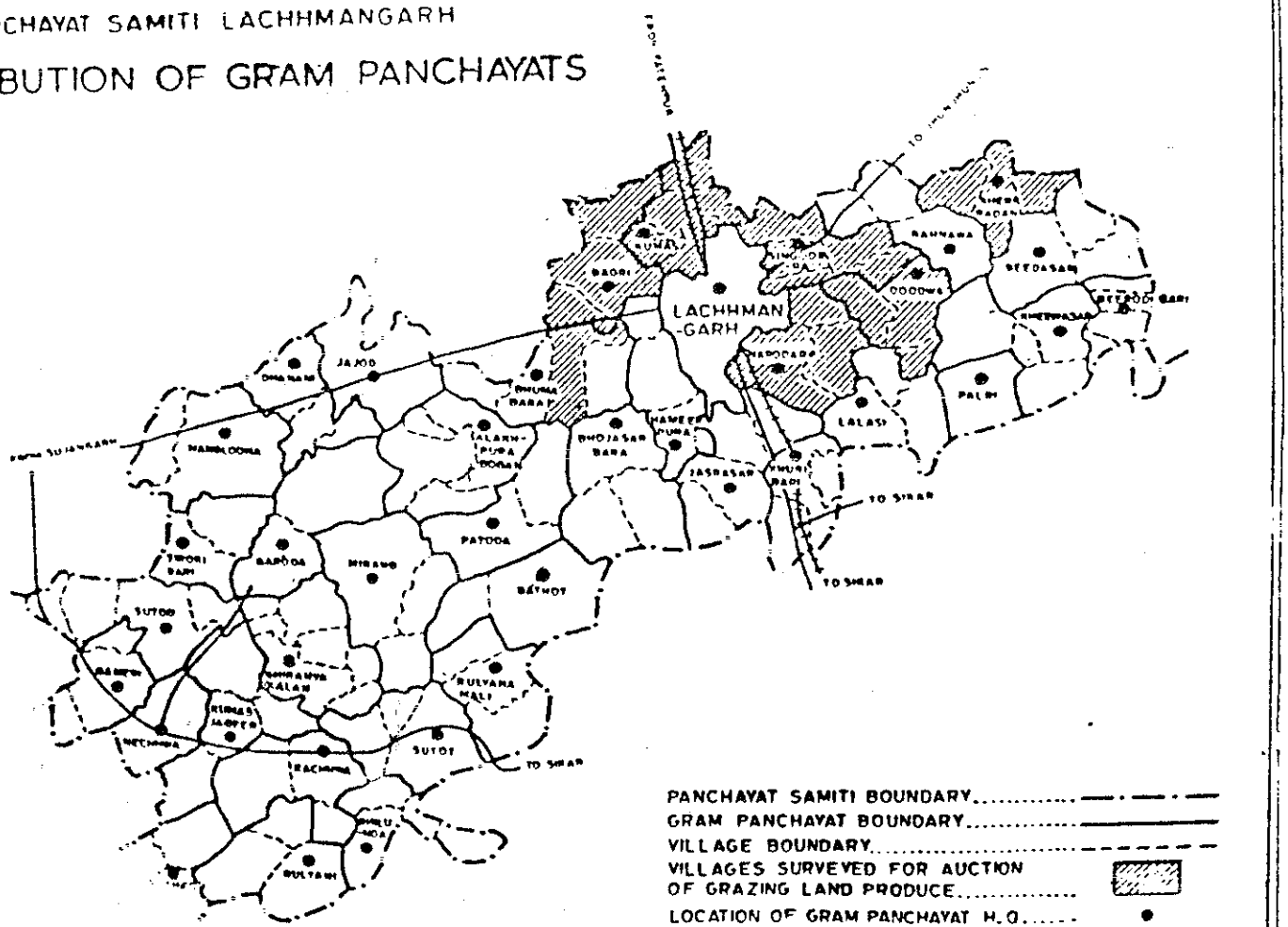
The villagers of Bhooma were represented on the gram panchayat by three ward panchas, Khedi and Dantujala elected two each and the smallest village, Baswa, had only one. This manner of representation tilted the voting on issues within the gram panchayat in favour of the largest village and systematically militated against the interests of villages that had fewer inhabitants.

There were 22 small villages in the tehsil (population size: less than 450) that were represented on the formal gram panchayat by one pancha or less (Table 3.3). The inhabitants of the tehsil as well as the govt. personnel engaged in administering 'development' schemes shared the view that the smallest villages were discriminated against in the electoral politics of numbers.

MAP No. III

PANCHAYAT SAMITI LACHHMANGARH

DISTRIBUTION OF GRAM PANCHAYATS



SOURCE:- PANCHAYAT RECORDS

06

Table 3.3 : Population size of gram panchayat head-quarters and associated villages

(Lachhmangarh panchayat samiti)

Village population size	Gram panchayat head-quarter villages	No.of associated large villages	No.of associated small villages	Total
4000 and above	1	-	-	1
3000-3999	2	-	-	2
2000-2999	8	-	-	8
1000-1999	20	17	-	37
450- 999	5	45	-	50
Less than 450	1	-	22	23
Total	37	62	22	121

Source : District Census Handbook, Sikar, 1981 and panchayat records.

Note : A 'large' village here is defined as a village with a population of 450 - 4000; a small village with a population of less than 450 inhabitants.

The sarpanch of the Bhooma gram panchayat hailed from Khedi. This partially displaced Bhooma as the favoured recipient of govt-aided 'development' schemes. The programme for desilting village ponds, for instance, was carried out only at Khedi. Again, the villagers hoped that they would be able to obtain the grant for a middle school in Khedi because the sarpanch was from their village even though there was a middle school at the gram panchayat head-quarters in Bhooma.

There was one sarpanch for each gram panchayat who was elected directly by the inhabitants of the villages constituting the panchayat circle. Often, the sarpanch's village coincided with the gram panchayat head-quarters, reinforcing the trend of 'developing' larger villages (Table 3.4). However, when the sarpanch belonged to a middle-sized or small village, there was a modification in the fund-allocation and, at least, one village that was not a gram panchayat head-quarters had stood to gain.

The informal committee of mukhias

The formal gram panchayat at Bhooma was known as the sarkari (govt.) panchayat. But there was a village-level committee of mukhias at Khedi that was recognised by the inhabitants as the de facto decision-making body devoted to the interests of resident villagers in their shared facilities. This committee was a voluntary organisation -- non-government -- committed to addressing itself to what were identified as 'whole village' concerns.

The informal 'committee of mukhias' was reported to be a characteristic feature of most villages in Lachhmangarh tehsil. All the 22 villages we surveyed had such committees. It was commonly regarded as

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the 'parde-ke-picche panchayat' (that is to say, 'the panchayat behind the curtains'). Since the gram panchayat had come to signify the official body, the informal panchayat was, increasingly, denoted by 'committee' or the 'committee of mukhias'.

Table 3.4 : Which was the sarpanch's village?

(Lachhmangarh panchayat samiti)

Village description	Number of sarpanches
Gram panchayat head-quarters	23
Associated large villages	13
Associated small villages	1
Total	37

Source : Panchayat records.

Note : A 'large village' here is defined as a village with a population of 450-2000; a 'small village' as a village with a population of less than 450 inhabitants.

While factions abounded in every village, sometimes aligned all the way to the State capital at Jaipur we were told, most villagers (and the residents of the accompanying dhanis, i.e. off-shoots of a village)[34], nevertheless, cooperated in the matter of their collective interests through the constitution of village-level committees. Less often, the village's notables were split into two or more 'parallel' informal committees, each at logger-heads with the other and managing its own affairs. We will turn to an examination of two of these exceptional villages later.

By law, the custody of abadi and charagah lands that fell in the domain of the Bhooma panchayat circle vested with its gram panchayat as it was formally constituted. On the ground, by contrast, the management of village pastures was entrusted to the village-level committee of mukhias at Khedi (as well as in the other three villages of the gram panchayat).

The committee approached the matter of its johadas holistically, irrespective of whether these lands were classified in the revenue records as charagah (permanent pasture), siwai-chak (lands vesting with the State Govt.) or Forest Dept lands. The actual pasturage at their disposal was thus understated in the revenue records.

34. Besides the cluster of a few outlying households, a dhani also denotes a farm-hut. Rajasthani-Hindi Dictionary, Vol.I (1984).

The villagers of Khedi distinguished their pastures from the neighbouring villages of Sanwali, Banai and Hapas, on the one hand, as well as from the adjoining villages of the formal gram panchayat, that is Bhooma and Dantujala on the other. The regular grazing of animals by the inhabitants of Khedi was limited to the village's johadas. The pasturing of livestock in adjacent villages was forbidden by like convention.

Notwithstanding villagers who continued to share their grazing resources with adjoining villagers, in a few exceptional instances, the point to stress was that the cooperative unit for grazing purposes was the body of village residents. Where it extended beyond or fell short of the village, it was conventionally defined and was not co-extensive with the jurisdiction of the formal gram panchayat. All 145 villages in Lachhmangarh tehsil had their own pastures. This appeared to be the preponderant pattern for the entire Sikar district (Table 3.5). The proportion of de facto grazing land to total village area ranged from 1-15 per cent (Map IV).

There was a conception of 'our village' at Khedi. It cut across the castes of Jats, Balais, Rajputs, Meghwals, Nais, Jangid Brahmins, Kumhars and Brahmins that comprised it, at another level. The village residents thought of the village as a body insofar as it related to their collective need for worship (temple), death rites (cremation grounds), wedding parties (panchayat ghar), the celebration of festivals and occasional rituals (as when the bhopa[35] was summoned). Apart from the spiritual dimension, there was an existential relation to the natural resources of the village such as its pond, well, grazing lands and trees that conjoined the villagers through activities and transformed the individual concerns into a collective consciousness. The 'commons' associated with these activities were perceived as the common property of the village.

Table 3.5 : Village-wise distribution of grazing lands

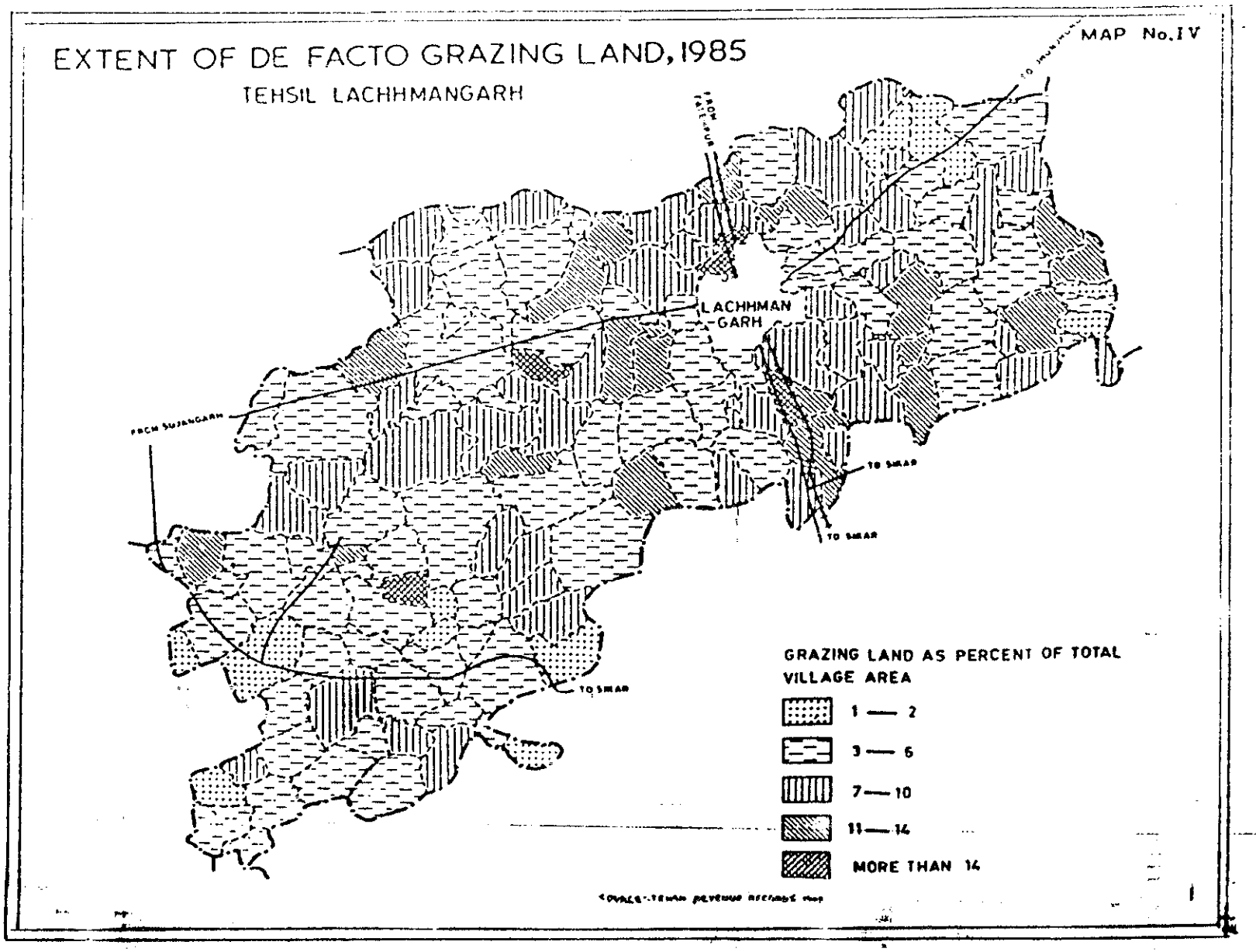
(tehsil and district)

Description	Lachhmangarh tehsil	Sikar district
Villages with grazing land	145 (100)	779 (93)
Villages without grazing land	0 (0)	58 (7)
Total	145 (100)	837 (100)

Source : Tehsil land records and District Census Handbook, Sikar, 1981.

Noted : Figures in brackets are percentages.

35. Bhopa: a religious specialist or shaman who propitiates folk deities. Rajasthani-Hindi dictionary, Vol.II (1984).


EXTENT OF DE FACTO GRAZING LAND, 1985
TEHSIL LACHHMANGARH
MAP No. IV
LACHHMAN GARH
FROM SUJANGARH
TO SIKAR
TO SIKAR
TO SIKAR
GRAZING LAND AS PERCENT OF TOTAL VILLAGE AREA
1 — 2
3 — 6
7 — 10
11 — 14
MORE THAN 14

The formation of new villages was a continuous phenomenon. Dhanis, in the process of becoming villages, may have lacked one facility or the other and often shared the facilities of the parent village till they attained a full-fledged village status, even if they continued to be known as dhanis. The progression was acknowledged in law, however, only when the residents sought a separate status by an application to the revenue authorities. Subsequently, an attempt was made to formally divide both the fields and the charagah lands. Conversely, a dhani could have been ratified as a village in the revenue record but may, by convention, have shared its pasturage rights with the 'original' village.

The committee of mukhias at Khedi was entrusted with decision-making about: (i) the drinking water arrangements for village residents; (ii) temple affairs (such as who was to be the pujari or the facilities to be offered to him); (iii) sandh (stud-bull) maintenance; (iv) rights and regulations about village pasturage (including what is to be done with the sum of money earned by the auctioning of the produce of its grazing lands); (v) penalties to be imposed when domestic livestock broke into cultivated fields; (vi) the settlement of other disputes between villagers, to the extent possible; and (vii) the prioritising of the needs for the village as a collectivity.

Informal village-level organisations of mukhias elsewhere in the tehsil were engaged in a similar type of activities that were addressed to the concerns of the villagers as a unity.

Composition of the mukhias' committee

Membership of the committee of mukhias at Khedi was confined to village residents. While some of the neighbouring villagers of Sanwali, Hapas, Bhooma and Dantujala had private lands in Khedi, their representation on this body was excluded on the dictum that resident villagers were 'first citizens', in a sense, and eligibility was precluded for the rest.

The stress on 'belonging to the village' underlay the criterion of residence at Khedi, as in the other villages of the tehsil.

The number of mukhias on the committee was dependent on what the villagers considered to be a 'working' representation for the task on hand. The number was, therefore, flexible. However, insofar as the matters pertaining to the collective interests of the village were of a recurring nature there was the equivalent of a 'standing committee' as it were, that claimed to represent the interests of all residents in the village.

Inclusion in the committee of mukhias was based on who was currently powerful - accommodating itself quickly to those who were 'gaining' or 'losing' both economic and political clout. A mukhia was one 'whose word is heeded' (jiska kehna mante hai). It based itself on two criteria: (i) A mukhia had to be recognised as the head of his family (parivar; kabila) regardless of whether the family was internally divided by chulha (fire-place) or residence. Given that the growth and sub-division of the family was a continuing process, an effort was made to represent those who were currently recognised as mukhias or spokesmen by their kin. If the balance of these forces altered, the committee of mukhias adapted its composition to the requirements of the new alignment. The number of kin-households who heeded a mukhia's word was indeed a measure of the mukhia's authority in matters related to the village as a whole. (ii) Secondly, to be a village mukhia and not the mukhia of a parivar alone, the mukhia or his parivar had to occupy a paramount position in the running of village affairs that was recognised as such by the villagers themselves. By this criterion, the former (patels) (the hereditary land revenue intermediaries and often the first colonisers of the village), elected representatives to the formal gram panchayat, the temple pujari (priest) and the drinking water in-charge featured on the village's 'standing committee'. There were 15 mukhias on the Khedi committee at present but this number could change easily (Table 3.6),

Table 3.6 : Composition of the informal committee of mukhias : Khedi Dookiya

Status of member	Caste	Extent of land owned in village (hectares)
Sarpanch and former patel	Jat Dookiya	8
Panch	Kumhar	5
Panch and shop-keeper	Jangid Brahmin	9
Former patel and money-lender	Jat Dookiya	7
Former patel	Jat Dookiya	8
Villager	Jat Dookiya	11
Villager	Jat Dookiya	8
Villager	Jat Dookiya	6
Villager	Jat Dookiya	4
Villager	Jat Dookiya	3
Villager	Balai	3
Maternally linked to former patels	Jat Punea	7
Pujari (priest)	Brahmin	2
Villager	Rajput	9
Maintains pumping-set for drinking water	Rajput	1

Source : Village residents.

The number of mukhias represented on the informal village committees of the tehsil was variable and based on specific village considerations. However, what made a mukhia was a shared conception. Moreover, most village committees had a nucleus of former patels and the elected

panchas and sarpanches. The representation of castes was uneven. Service caste households, where they were few, were often clubbed together and the Balais and Meghwals (the 'scheduled castes') were not necessarily distinguished.

The committee of mukhias at Khedi comprised inhabitants of diverse castes. The representation of different caste households was not proportional to the number of their households in the village (Table 3.7). The distribution was apparently skewed. Why this was so is a subject that telescoped the village's past and present.

The committee of mukhias at Khedi had formerly comprised the founding Jat zamindars of the village and their descendants who had a privileged status as the first colonisers of the land. For instance, prior to the 1920s, the right of breaking up uncultivated tracts in the vicinity of the village was preferably confined to the first settlers and their heirs. Households of service castes had a subordinate status and derived their livelihood primarily from their work association with the Jat cultivators.

The name of the village - Khedi Dookiya - commemorated the first Jat settler and his lineage - Dookiya. His descendants later functioned as the three patels of the village, in charge of channelling the village's land revenue to the Sikar thikanedars.

Table 3.7: Caste composition of village mukhias committee: Khedi Dookiya

Caste	Number of households	Number of mukhias	Ratio of mukhias to households
Brahmin	9	1	1 : 9
Jat	84	9	1 : 9
Rajput	25	2	1 : 12
Balai	31	1	1 : 31
Meghwal	5	0	0 : 5
Khati	1	1	1 : 1
Kumhar	1	1	1 : 1
Nai	1	0	0 : 1
Total	157	15	1 : 10

Source: Village residents.

The present inclusion of the former patels or their descendants in this committee derived from the continuing importance that they carried by virtue of both the inherited lands at their command and the paramount status of their lineage in the village. The non-patel Jat Dookiyas represented the emergent mukhias as the lineage sub-divided over time. The Jat Puneas and Jat Kheechars were related to the Dookiyas as the descendants of maternally allied lines. For example, in the absence of a son, a daughter's son inherited his maternal grandfather's lands and their descendants had lived on in the village. However, their status in the village was not on par with that of the Jat Dookiyas.

The Rajputs at Khedi did not have jagirdari rights over the land revenue of this village, even in 1920. As said before, Khedi was a khalsa (crown) village, that had turned over its revenue to the chiefs of

the thikana. However, the resident Rajputs at Khedi had arranged for the cultivation of some fields over which they had subsequently retained khudkasht (self-cultivation) rights (Table 3.8). They were represented in the committee of mukhias by one head. The second Rajput looked after the maintenance of the drinking water arrangements in the village that warranted his inclusion in the committee.

Table 3.8 : Caste and land ownership : Khedi Dookiya

(number of households)

Caste	Land holding size (hectares)				Total
	Upto 3.9	4-7.9	8-11.9	12 and above	
Brahmin	8	1	-	-	9
Rajput	16	6	2	1	25
Jat	25	34	15	10	84
Scheduled caste	32	4	-	-	36
Service caste	-	2	1	-	3
Total	81	47	18	11	157

Source: Village survey and jamabandis.

Note : The 'scheduled' castes include Balais (agricultural labourers/weavers) and Meghwals (carcass-gatherers). The 'service' castes comprise Nais (barbers), Kumhars (potters) and Jangid Brahmins (carpenters).

The Brahmin featuring on the village committee of mukhias was the priest of the principal village temple. There was only one household each of the service castes of Jangid Brahmin (carpenter), Kumhar (potter) and Nai (barber) at Khedi. Their extraordinary representation was possible because two of them were voted as panchas in the wake of the factionalism among the village Jats. Had they not won the election, only one of the two current mukhias would have been on the committee.

The Meghwals and Balais comprised the 'scheduled caste' residents of Khedi. In the past, settlements' with jagirdars about cultivation rights over land were precluded for these castes who primarily assisted the Jats in agriculture, apart from skinning dead animals (the Meghwals' preserve) and weaving (the distinctive occupation of the Balais). A few Balais had succeeded in procuring cultivation rights either directly from the thikanedar concerned or from the Jats who, in order to curtail their own expenditure on the village Balais, had allowed them to self-cultivate a field or two. Those who had managed to hold on to such lands after 1955, gradually improved their status and described themselves as 'Jat-Balais' - that is, as Balais engaged in cultivation.

Even the latter Balais were not considered to be on par with the Jats in matters of a say in the village affairs. However, they were represented on Khedi's committee by one of their mukhias. The inclusion of a Balai in the informal committee was not a legislative requirement- a fiat from above - but sprang out of the erosion of former values as perceived by the villagers themselves. The introduction of adult franchise, nevertheless, had paved the way for a recognition of their numerical strength in the village.

Most village-level committees in the tehsil were dominated by the Jats who were the principal founder-settlers of this tehsil's villages and were the predominant landholders today. Predictably, the former jagir villages had a higher number of Rajput notables who were then

represented on the village committees in a proportion that was commensurate with their importance - their past was taken into reckoning insofar as it was relevant for the present as well. By and large, the representation of 'service' and 'scheduled' caste households on the village committees was low.

The 'election' by formal voting to the gram panchayat followed a feverish politics generated by the once-in-five-years elections[36]. This electoral pattern seemed to be at variance, however, with the villagers' understanding of 'representation' on, at least, three counts: (i) the number of panchas, as they saw it, was arbitrarily limited to two whereas the committee was more flexible about the numbers that may have been required; (ii) the distribution of the village's abadi on a ward basis merged residents of diverse castes and lineages and allowed them only one representative from the amalgam; (iii) the one-vote-per-villager would, in village reckoning, have been one vote for its parivar's mukhia. Since this could not be so for all residents, who would be voted became a chancy matter, contingent on the configuration at the time of the elections. This introduced, for example, the dimension of 'compromise candidates' that led to the election of the Kumhar and the Jangid Brahmin at Khedi as panchas in the formal gram panchayat.

Table 3.9: Stratified ratio of mukhias to households : Khedi Dookiya

Land holding size (hectares)	No. of households	No. of mukhias	Approximate ratio mukhias to households
Landless	-	-	-
Upto 3.9	81	4	1 : 20
4 - 7.9	47	5	1 : 9
8 - 11.9	18	6	1 : 3
12 and above	11	0	0 : 11
Total	157	15	1 : 10

Source : Village survey.

Therefore, the villagers regarded the informal committee of mukhias as the stable, enduring unit while the representation on the formal gram panchayat was thought to be more fortuitous. The former based itself on the existing power structure in the village while the latter rested on a political conjuncture that may have favoured one or the other caste or lineage temporarily.

An attempt was certainly made to adapt the composition of the committee of mukhias to the changed circumstances arising out of the

36. Elections to the gram panchayats in Rajasthan have, sometimes, been held at longer intervals - 1960; 1965; 1978; 1981.

political structuring of villages into gram panchayats. Since, for instance, the importance of the elected representatives in obtaining funds and facilities for the village was considerable, panchas and sarpanches were invariably included on the committee of mukhias while they occupied the electoral positions. On losing the elections, they were dropped if their representation as mukhias was not warranted in the perception of the villagers. Conversely, the committee of mukhias sought to elect one of its members as a sarpanch - that is, one who was acceptable in village reckoning as a mukhia.

Representation of scheduled castes

It was apparent that the 'scheduled' castes and less-landed households were under-represented on the committee of mukhias at Khedi (Tables 3.7 and 3.9). But what did this signify? The villagers did not think that representation on the committee that articulated and managed whole-village concerns had to base itself on 'caste' proportions or 'land' distributions. The composition of the committee of mukhias had a legitimacy that was founded on the residents' present and past experience of the representation that was necessary to achieve what was sought to be achieved.

Table 3.10 : Who kept cows at Khedi Dookiya?

Land holding size (hectares)	Total households	Cow-keeping households
Upto 3.9	81	44
4 - 7.9	47	35
8 - 11.9	18	14
12 and above	11	6
Total	157	99

Source: Village survey

What would the ideal committee looking after the interests of Meghwals and Balais at Khedi look like? While their 36 households were represented by one mukhia, they wanted the number raised to four. Why four? In their way of thinking, the interests of these 36 households that sometimes diverged could be accommodated by including four mukhias who would between them articulate the concerns of all the parivars of Meghwals and Balais at Khedi. This was what they were seeking to accomplish at present. Evidently, the number suggested depended on the number of conflicting groups to be represented rather than representation as concretised by the formal democratic system - one pancha to a population of 250-420.

Table 3.11 : Who went to school at Khedi Dookiya?

Land holding size (hectares)	Households with school-going boys (4-15 years)	Households without school-going boys (4-15 years)	Households without boys (4-15 years)	Total
Upto 3.9	30	21	30	81
4 - 7.9	20	8	19	47
8 - 11.9	9	3	6	18
12 and above	5	3	3	11
Total	64	35	58	157

Source: Village survey

Did the village committee of mukhias tilt in favour of the patels and the Jats? At Khedi, the Meghwals and Balais averred that in a situation of interest- conflict it may have done so but they considered it necessary to include the patels of the village on this committee as nothing could be achieved for the village as a whole without their concurrence, regardless of what the legislation stipulated. The concerns to which the committee addressed itself were viewed as those of all residents as a corporate unit. The Balais were not excluded from this definition in their own reckoning. Thus, as they put it, both the less-landed and the Harijans kept cows (Table 3.10), utilized the services of the stud-bull as well as school facilities (Table 3.11) and benefitted from the water arrangements that were made for the village residents as a group.

The ideal village committee of mukhias, in a sense, was taken to be one that accommodated the entire gamut of view-points, though in its processual aspects, it discriminated against the 'powerless'. In the formal gram panchayat, one scheduled caste member was nominated to the gram panchayat if none had been elected in the normal course. Where the scheduled caste panchas were co-opted and not voted as panchas by the constituents themselves, their choice, in practice was tailored to the requirements of the elected body and their position was already compromised. No Harijan sarpanches had been elected to the Lachhmangarh panchayat samiti despite the fact that at the vidhan sabha level Lachhmangarh was a constituency 'reserved' for scheduled castes[37].

Women's interests

Were the interests of women represented on Khedi's informal committee of mukhias?

Women did not feature on the committee of mukhias as members since they were not overt decision-takers in the villagers' reckoning. Panchayati was perceived as the domain of men. Insofar as the mukhias took care of the interests of their household members, the needs of women and children necessarily became a focus. For instance, water fetching was primarily considered to be the woman's responsibility. Yet, the committee of mukhias decided on improved arrangements for drinking water as the priority for the village. Where the interests of women and men differed, however, it was the former who lost out -- for example, a few women at Khedi questioned the desirability of auctioning fodder and firewood from village grazing lands as it could alternatively have been used for consumption. But such thinking ran against the priorities as perceived by men.

The two women panchas co-opted in the formal Bhooma gram panchayat of which Khedi a constituent village, were Harijan women in their late sixties. They had been persuaded by their husbands to agree to this nomination. Both of them had attended the two annual meetings of the gram panchayat but had kept quiet through the proceedings.

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37. Sixteen per cent of the population in Lachhmangarh tehsil comprised scheduled caste inhabitants against 14 per cent in Sikar district as a whole. The proportion of scheduled caste inhabitants in the other tehsils of the district ranged between 11 to 15 per cent.

Table 3.12 : Caste affiliation of sarpanches
(Lachhmangarh panchayat samiti)

Caste	Number of sarpanches
Jat	17
Rajput	5
Jangid brahmin	5
Mahajan	3
Brahmin	4
Muslim	2
Sunar	1
Scheduled caste	-
Total	37

Source: Field enquiry.

It was apparent that there were fewer social taboos on the mobility of older women, especially Harijans. No women, however, had been elected to the gram panchayats of Lachhmangarh panchayat samiti so far as panchas or sarpanches. Their inclusion in the committee of mukhias was unheard of.

Some implications

The basis of the formal panchayati raj in villages was the adult franchise that governed the democratic system of the country. The positive effects of this practice had led to an appreciation of the numerical strength of scheduled castes and women in securing the election to political offices. However, the assumption that hose who were electorally represented through this process (as members of the gram panchayat) could fairly 'represent' the conflicting interests of their constituents did not necessarily follow.

An ongoing forum for a consensual resolution of the issues that arose in the corporate life of village residents vis-a-vis other villages and the govt. was provided by the informal committee of mukhias. This informal 'committee' was obviously not the prototype of a 'just' body insofar as the interests of women, scheduled castes and less powerful men were concerned. While it was 'ideally' oriented to the

interests of the village as a collectivity, 'processually' it tilted towards the dominant villagers and male interests. Yet, the govt., too, was, 'ideally' oriented to the equality of all citizens, as revealed in its legal pronouncements but 'processually' it worked toward the interests of the dominant classes. In relation to the commons, however, the informal village committee of mukhias was perceived, even by the subordinated sections, as relatively oriented to their interests while the laws of the govt. as they were administered were seen as usurping the rights of villagers. The functioning of this informal committee with regard to the commons is the subject of the next section.

III

PASTORAL CONVENTIONS

In the following account, we describe and examine regulations concerning the produce of village grazing land that were framed and implemented by the committee of mukhias for the body of resident villagers. The idea is to understand the strengths and limitations of this informal committee in relation to the resident users of the commons.

At Khedi, the lopping of whole trees and shrubs growing in the village's grazing lands as well as their branches was forbidden. Fallen twigs and branches, however, could be gathered for burning.

If a resident villager cut off a branch or two for use as fuel or timber, it was overlooked but a non-resident was not considered to be on par in this respect. The penalty imposed on 'outsiders' for lopping fire-wood was Rs.5/-.

The right of pasturage belonged, first and foremost, to village residents. Even those who had fields in Khedi but lived in an adjacent village or had fields bordering Khedi's pasture-land, could not claim it as a right although it was sometimes granted in a spirit of brotherly co-operation (bhai-bandi). The sojourns of itinerant professionals who set up hearth and home on the pastures were restricted to a few days only. Migrating shepherds who stopped at Khedi en route to Bikaner or Haryana were similarly dealt with unless the visitors were a villager's rishtedars (relatives).

The right to profit from the auctioning of village produce, too, was confined to those living in the village. The unwritten convention laid down that outsiders to the village, even if they were residing within the panchayat circle, were not allowed to bid for the loong and kooncha of the village's grazing lands.

What was to be done with the amount obtained by selling the produce of the grazing lands was resolved by the village committee of mukhias and not the formal gram panchayat. How much land was to be reserved for Bhaironji's bani and which trees were, therefore, closed to the annual coppicing was a matter settled by the mukhias' committee.

Fallen tree-trunks (not twigs or branches) could not be carried away from the johadas. Such trunks were utilized in the village school or for a collective rite undertaken in the village. Those who lopped whole trees were penalised. The villagers of Khedi could recall at least three such instances in the recent past. The culprits had, sometimes, been identified by the villagers on the basis of their foot-prints. Fines ranging from Rs. 30/- to Rs. 50/- had been insisted upon though this, again, had varied in the case of village 'residents' and 'outsiders'.

Most villages in the tehsil regulated the use of grazing lands by conventions that were acceptable to the majority of inhabitants. These conventions, which differed in specifics, were implemented by the villagers' committee of mukhias. As a first principle, residents of the village alone were considered to be the rightful users and decision-takers in regard to the produce of the commons.

As said before, the committee defined the extent of village johadas from the perspective of the village as a collectivity. Thus, the right of pasturage, loong, kooncha and fire-wood from what may have been classified as Forest Department lands, siwai-chak lands or banjar johada was considered as belonging to the village inhabitants and the custodian of such rights was the committee of mukhias. The extent of the village's bani, on the other hand, found no mention in the village land records but was agreed upon and its trees preserved from felling by the villagers themselves.

The auctioning of regenerative produce

Decisions about the auctioning of the natural produce of pastures were taken by the committee of mukhias at Khedi. What was to be auctioned and when, who was to benefit, where was the bidding to take place, how was it to be conducted and in whose presence, who was to keep the money and what was it going to be utilized for were some of the issues that were addressed by the village committee.

At Khedi, the loong from khejri trees found in the pastures was auctioned once every year in January. The circular notifying the date of the auction was issued by the gram panchayat. The sarpanch conducted the auction in the presence of a few village mukhias who were agreed that the bidding would stop at a predetermined amount (Rs. 500/- at Khedi in 1985). This sum was made over to the sarpanch as the representative of the gram panchayat, a receipt was taken and the matter was officially closed. This amount was deposited in the gram panchayat's treasury.

On the next day, as the villagers put it, "the 'real' auction took place" (asli boli lagti hai). The Balai identified for this job announced the village auction in the chaupal (central meeting place). The villagers assembled and bid for the loong of their pastures in the presence of the mukhias who had been designated for overseeing these proceedings.

The bidding was restricted to resident villagers only. The person whose bid was the highest made over a sum of Rs. 500/- immediately to clinch the deal. The total sum was realised in instalments

khejri tree was not detrimental to the fodder output of matured trees and preceded the seasonal leaf-fall.[38]

The final bid at Khedi in 1985 stopped at Rs. 14,000/-. This deal was struck by two Jats in partnership (land-holding size about 12 hectares each). The loong and wood obtained from village pastures in this manner was intended for onward sale and profit.

A grass used for making thatches and baskets (locally known as kooncha - (Saccharum bengalense) was, sometimes, similarly auctioned. Whether the kooncha would be auctioned or not depended on its output in a particular year -- the latter was as variable as the rainfall in the region.

The net sum procured for the village by the sale of kooncha was small as compared with loong and firewood. In 1986, it amounted to Rs. 200/- at Khedi. The kooncha was bought by the Harijans at Khedi and converted into thatches both for use and sale.

The total amount obtained from the village auction was deposited with the committee of mukhias. At Khedi, this fund was formerly entrusted with a school teacher who had lived and worked in this village for 10 years but after his departure it was distributed for safe-keeping between the mukhias. It was believed that the chances of its misappropriation were low because its expenditure was being watched by everybody (sabke nazaron mein hain).

What was to be auctioned was a matter resolved by the village committee of mukhias but the auctioning itself was reported to be a common practice in the other parts of the Shekhawati region as well.[39]

The fodder of khejri trees (loong) growing on the grazing lands was auctioned annually in 18 of the 22 villages that we surveyed for information on this aspect (Map III). At Sohrana-ka-bas and Bagriyan-ka-bas, the dearth of khejri trees ruled out the sale of such fodder. In the other two villages, the johadas were held to be banis consecrated to the goddess Karni Mata and a sadhu (monk). While the felling of khejris on the bani's land was forbidden, the under-storey of pasturage and fallen twigs was open to use by the residents.

Apart from the loong and kooncha, gobar (dung) that had collected in the abadi area or grazing lands was auctioned by some village-level committees. This was especially so if there was a central watering point or a shady tree which served as a parking spot for livestock and a predictable manure collection centre.

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38. However, the coppicing of khejris precluded the formation of pods and seeds on these trees. For details, see Chapter VI.

39. Field-work by other researchers at the Institute of Development Studies, Jaipur, indicated a similar practice in some of the villages surveyed in Jhunjhunun, Churu, Nagaur, Bharatpur and Pali districts.

Both the Jats and the Balais joined the bidding at the village's auction of leaf fodder. The Jats who had more lands at their command also had the ready capital. The Balais, too, competed for the produce of the grazing lands because it afforded them off-season employment in winter[40] and enabled the fuller utilization of their family labour. A loan from the money-lender to meet the bidding requirements was, therefore, considered worthwhile. The payment to the committee of mukhias, too, was permitted in instalments, as the loong was cut and collected. The bidding for kooncha and gobar was almost confined to the Balais in this tehsil.

The procedure for the auction in the surveyed villages was similar insofar as the auction held by the gram panchayat was a legal formality whereas the genuine auction was conducted by the village's committee of mukhias and was, strictly speaking, illegal. The money obtained from the proceeds of the auction was generally retained by the village committee and not deposited in the gram panchayat - what was entered in the official records, was a token amount, except in the gram panchayat of Kumas Jatan and village Banai of Bagri gram panchayat, the special circumstances of which we recapitulate next (Table 3.13).

Kumas Jatan was the head-quarters of a five-village gram panchayat where the sarpanch exceptionally insisted that a 'real' auction take place in his presence though here, too, the bidding was limited to village residents. It was alleged that the members of the committee of mukhias in one of the constituent villages of this gram panchayat had formerly utilized the money for private ends. After the 1981 gram panchayat election the funds obtained from the loong auction were deposited in the treasury on the sarpanch's directive.

The other village residents of the gram panchayat were agreed that the misappropriation by the committee of mukhias had to stop. However, they were antagonised by the next move initiated by the sarpanch - he distributed this fund between the five villages in a manner that he deemed as just. The legislation empowered him to do so but this way of approaching the issue ran counter to village norms (kayda) that required the sum obtained from the sale of pasture-land produce to be invested in that village alone. The sense of justice underlying this perspective was evident once it was appreciated that the sarpanch's village had scarce natural produce in its grazing lands and had stood to gain through this distribution.

40. Cf,. Jodha (1986).

Table 3.13: Declared and actual income from grazing lands: 1985-86

(rupees)

Number of gram panchayats	Gram panchayat head-quarters and constituent villages	Declared income (official record)	Actual income (our enquiry)	Discrepancy
I	1. Narodara	Nil	3,000	6,500
	2. Dholas		3,500	
	3. Sohrana-ka-bas		No auction (lack of khejri trees	
II	4. Doowa	360	2,800	2,940
	5. Bagriyan-ka-bas		No auction (lack of khejri trees)	
	6. Kheerwa		500	
III	7. Khedi Radan	100	60	3,160
	8. Madhopura		2,500	
	9. Mirjwas		700	
IV	10. Singodara	732	600	3,668
	11. Singodari		No auction (bani of Karni Mata)	
	12. Basni		No auction (bani of sadhu)	
	13. Fadanpura		2,300	
	14. Peepli		1,500	
V	15. Kumas Jatan	15,225	4,000	575
	16. Chhinchhas		3,000	
	17. Manasi		3,000	
	18. Alkhpur Godaran		4,800	
	19. Lachhmangarh (rural)			1,000
VI	20. Bagri	3,050	5,000	8,450
	21. Deenwa-Jatan		3,500	
	22. Banai		3,000	

Source: Panchayat records and field survey.

Note: The six sampled gram panchayats are located in Lachhmangarh tehsil (Map III). The names of the gram panchayat head-quarters are underlined.

Again, Banai was the smallest village of a three-village gram panchayat that included Bagri and Deenwa. It was represented on the gram panchayat by one panch.

The informal committee of mukhias at Banai was split into two parallel committees[41] - one dominated by the Jats and the other by the 'scheduled' castes though each committee included representatives of the other castes as well. The balanced representation of these two committees on the formal gram panchayat was not possible because the village was represented on this body by one panch only. Therefore, even though the funds realised from the village auction were deposited in the gram panchayat at present, the panch was able to orient its expenditure to the ends of the faction that he headed in the village. By contrast with the gram panchayat of Kumas Jatan, however, the sum afforded by the auction had been utilized for the development of Banai alone and had not been distributed between the constituent villages of the formal gram panchayat. The other villages of the Bagri gram panchayat had continued to vest their auction money with their village-level committees as before.

The above two instances were considered to be exceptional by common reckoning. By and large, the fund raised by the village through the auctioning of the produce of its commons was entrusted with a resident school teacher, a priest, kept in the custody of the committee of mukhias or invested with a bania (trader/money-lender) either in the village itself or at Lachhmangarh town.[42] It was never deposited in a bank. Extraordinarily, the full amount that had been realised, found its way to the gram panchayat's treasury but this could, in fact, be taken as an indicator that all was not well with the village's committee of mukhias.

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41. We shall give a detailed account of why the committee of mukhias split at Banai in the next chapter.

42. Kaul (1987), too, finds that the income from common lands in villages on the outskirts of Delhi was entrusted to the village trader and utilized for common purposes.

Elsewhere in the tehsil, the produce of what was shown in the land records as Forest Dept. lands too, was auctioned to the majority's satisfaction by the committee of mukhias. Where the Forest Dept. had initiated a programme of tree plantation on such lands (as at Dhanani, Lalasi and Rehnawa), it was explicitly conveyed and granted that the right to the loong and other pre-existing natural produce would belong to the villagers.

Similarly, a mock auction was held on johada lands vesting with the tehsil as uncultivable State Govt. lands. A date was announced for the auction at the tehsil. The State Govt.'s representative was given a token sum as the maximum that could be realised in the village auction for which a receipt was duly obtained. The genuine village auction took place subsequently and clubbed together the trees growing on its johadas, quite regardless of the official classification.

The existence and functioning of the sarkari panchayats and the village-level committees had inevitably drawn the two into a relationship. The elected representatives of the formal gram panchayat had to reckon with the contemporary conventions that defined the body of villagers as the rightful owners to the produce of their grazing lands. The sarpanches and panchas were thus aware that what was required of them in law conflicted with their own assessment as resident villagers. But few sarpanches insisted that the sum realised from the auction should be deposited in the gram panchayat.

In order to amplify the informal committee's manner of functioning, we will describe the administration of another common property in the village - drinking water - before returning to what the auction money was utilized for.

At Khedi, the village committee of mukhias managed the arrangements for drinking water. There was one well in the village that met the drinking water needs of all village residents, including the scheduled castes.[3] In the past, drinking water was drawn by a rope and pulley using animal draught power. About four years ago, the govt. provided funds for building an overhead tank. Since electricity had already reached the village, the committee of mukhias decided to invest the village's own fund in a pumping-set for drawing the water from the well

3. A separate hand-pump had been installed in 1984 for the scheduled castes, near their huts, in the abadi area of the village under govt. auspices.

and its subsequent storage in this tank. A central pipe-line was laid out right through the abadi area using village funds. Animal watering containers (kheds) were built at strategic points and connected to this pipe-line. The extension from the main pipe-line to a house, if desired, had to be met by private cost.

The pump's maintenance was entrusted to a villager who was paid Rs.200/- per month. He had been identified on the basis of his capability for this task. If the pump burned out, the cost of its repairs was added to the electricity bill for drawing water from the well.

The electricity bill was divided between the residents of the village on the basis of 'units': men, women and boys were taken to be a unit each while girls were exempted from the water charges altogether by village convention. Similarly, those living in dhanis or kothis (irrigated farms with private water arrangements) were excluded. The rates for livestock were worked out specifically for each animal species - a flock of ten sheep or goats, a camel and a cow were considered to be one unit each but a buffalo was reckoned as two units while computing the consumption of water.

Formally speaking, village drinking water was the business of the concerned gram panchayat. But the responsibility of drinking water in the village had often been taken up by the committee of mukhias in this tehsil.

Priorities as perceived by villagers

What was the money obtained from the auction utilized for by the village committee of mukhias?

At Khedi, this sum was first and foremost reserved for the maintenance of the village sandh (stud bull). The sandh was a crucial requirement of cattle husbandry in the region. It was also venerated as a sacred animal. The villager engaged for looking after the sandh was often a Brahmin. The maintenance of the sandh and his guardian was partly met by a grain and fodder contribution that was voluntarily offered by village households. Over and above, the village fund was tapped to meet the food requirements of the sandh. The custodian of the sandh, too, was paid a cash amount of Rs. 600/- annually from this sum.

The soaring of loong prices to their present level (Rs. 50/- per maund), especially over the last five years, had afforded a considerable hike in the proceeds from its sale at Khedi. This fund had now become vital for pursuing the order of priorities as perceived by the resident villagers themselves.

In 1985, the funds acquired by the auctioning of regenerative produce were deployed for constructing additional rooms in the village primary school. It was thought that by raising the building, it would be easier to stake the claim for a middle school. The supervision of the construction was the charge of the Kumhar panch who was the village's masonry expert.

In 1984, the sum realized from the auction was invested on a dispensary building jointly with the neighbouring village of Dantujala. The building was constructed on Dantujala's pastures but was equally accessible to the residents of Khedi. Earlier, the improvements on the principal temple (mandir) had been undertaken in collaboration by the two village committees at Khedi on the same tract that was within the reach of inhabitants in both villages.

The villagers of Khedi cooperated with the residents of Dantujala in matters of mutual advantage but this cooperation was not a consequence of their inclusion in one gram panchayat. It was the proximity of the two villages' abadis, the existence of a tract of grazing land that

stretched from one village to the other without being broken by private fields and the presence of a common labour market[44] between the two villages that made for the viability of cooperation as perceived by the villagers themselves.

In 1983, the proceeds of the auction were utilized for laying out a central pipe-line that connected the principal well of the village with the rest of the abadi as outlined above.

Why was a portion of the auction money not ploughed back for augmenting the produce of grazing lands? The majority of villagers and the committee of mukhias was not averse to this idea. It the villagers did not consider it, in the long run, they would be killing the goose that laid the golden eggs, as it were. However, they explained that in their scheme of priorities a sandh, water arrangements, a medical centre and a middle school featured as prior necessities.

Secondly, it was only in recent years that the price of loong had escalated. Therefore, while it was true that the output of loong from pastures had decreased (since fallen trees were not replaced by natural regeneration) it appeared as though the village was in for a bonanza because of the higher-than-ever-before sums realized through its auction.

Thirdly, the villagers were now oriented to the thinking that the village fund was best utilized for needs determined by the body of villagers themselves or else for matching grants that could be obtained from the govt. on this basis.

The funds generated by the auctioning of the produce of the commons were invested in what was perceived as collective welfare in the other villages of the tehsil as well. It provided a flexible village fund that was expended on local priorities by contrast with the sums that were invested in the predetermined 'schemes' channelled through the formal gram panchayat. The informal village-level committees were, in fact, engaged in undertaking and complementing the tasks that were formally assigned to the gram panchayat while keeping resident interests in view.[45]

The informal village-level committee of mukhias and its functioning in relation to the village commons was, however, not the epitome of social justice. The auctioning of the natural produce from village commons before ensuring that the requirements of the less-landed residents and the women who collected the households' fuel-wood and green-fodder bundles were met indicated that this committee, too, was caught in the whirlpool of exchange value before use value. Yet, insofar as the amount obtained from auctioning the produce was reinvested in the

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44. Bardhan and Rudra (1986) note that the 'development' implications of such 'moral boundaries' between villages need to be explored.

45. Administrators and social scientists commenting on the performance of formal gram panchayats have drawn attention to their lack of autonomy and the paucity of funds as factors impeding their contribution. For details, see Govt. of Rajasthan (1964); Govt. of India (1985); Neale (1985).

village itself it obviated the need for levying taxes per household to support collective activities for the village as a whole. While the formal gram panchayat was in fact authorised to charge taxes on its constituent households for the construction/maintenance of common facilities, the mukhias committee preferred to deploy the auction sum for this purpose. What was a common fund was refurbished by common resources and private taxation to meet collective ends had been eschewed.

Through its working, the informal committee, moreover, was able to ensure that the residents had access to the profits of village commons which the govt. had, in fact, arbitrarily assigned to itself as 'unoccupied' lands, to the Forest Dept. or to the gram panchayat. The appropriation of this produce by the govt. or the gram panchayat may have served the interests of outsiders to the village but justice vis-a-vis the village residents was attempted by this committee.

IV

CONCLUDING REMARKS

Accustomed as we are to thinking of a village as atomised into households and oriented only to caste considerations, the bonds between villagers have eluded us. In this respect, our method of studying just two villages helped us to understand village folk better. Their concern for the management of common village resources through informal committees was overwhelming rather than negligible. The representation on the 'committee of mukhias' was based on the number of conflicting groups involved in keeping with the purposes of the committee. This convention differed from the system of proportional representation which functioned with a fixed number of members as laid down by law[46]. Their practice with regard to the produce of village commons showed a sensitivity to what can be described as a 'resident' public interest vis-a-vis both the State Govt. and the formal gram panchayat. Their decisions may not have stood in a court of law but were seen as

46. Nicholson, too, concludes that the "principles underlying popular elections, therefore, are at odds with the village culture's definition of ideal political procedures". (Nicholson, 1973:31).

well[51]. Wade (1985) focusses upon the working of village councils in Andhra Pradesh, replete with a village standing fund that was distinguished from the sum contributed by the State Govt. He suggests that such councils were most effective where the individual benefits from collective action were greatest. The 'unofficial' control by village residents over adjacent forest land and its produce is brought out in Moench's (1987) study of Himachal Pradesh. Blaikie et al (1985), too, discern that there is a "powerful ideology.... of local self-government" in Tamil Nadu villages despite the fact that the formal panchayats have been waning since 1975.

The evidence suggests that the smallest exclusive unit for pastoral produce is predominantly the village. This user-group of residents defined regulations over rights to the pasturage, restricted the access of outsiders and checked the 'tragedy of the commons'[52], which assumed that each person tried to maximise gains with not a thought for the resource's regeneration-ability. Their rules were flexible and responded promptly to local nuances and changes by contrast with the relatively static formal laws.

In the contemporary context, the conventions governing the right of access to fodder resources on migration routes and pastoral resources within the village itself increasingly reeled under legal controls and demographic pressures[53]. We have drawn attention to the closure of grazing in forests that had been taken over by the govt. Transhumant herders were viewed as a nuisance by the govt.[54] even though their strategies were sound, economically and environmentally. The right to the proceeds from village auctions, too, legally belonged to the gram panchayat. The design and imposition of laws framed at national and State head-quarters had rendered some of the grazing conventions of livestock-rearers illegal and vulnerable to the dragnet of the law-enforcement agencies. For Nepal, Bromley and Chapagain (1984) observe

51. Recent rural development efforts in Tamilnadu, for instance, have worked through a consensual decision-making process and informal, village planning forums. See, for instance, GOI (1986).

52. Hardin (1968).

53. We explore the demographic dimension in Chapter V.

54. Govt. of India (1982)

comprehensible and fair by the village majority[47]. With the small village fund at their disposal, the villagers sought to pursue priorities as they perceived them.

We have often looked for the causes of the failure of cooperation in the working of statutory institutions - gram panchayats, panchayat samitis and zila parishads and formally legislated cooperatives. Even social scientists have often confined their analysis of village-level decision-making to a study of formal institutions alone and assumed that the earlier, informal panchayats had simply vanished[48].

For the area covered by the Jat peasantry in Rajasthan, Punjab, Haryana and western Uttar Pradesh over approximately 2,00,000 miles, Baden-Powell (1889) observed that since the villages were 'joint' (zamindari) i.e.settled by a lineage with separate holdings as only shares in a unit estate, the claims of the founder-settlers over commons had been far greater than that of the state[49]. This contrasted with the severalty (ryotwari) areas of the rest of the country where land was held by members of disparate lineages. The predominantly Jat villages had had a panchayat rather than a single head-man for the period that records were available to the British administrators[50]. In such villages the uncultivated tracts were available for partition between the joint body on the same basis as their share in the cultivated lands till such time as it had been frozen as grazing lands to meet the needs of resident villagers.

Reports from other parts of India, however, indicate that informal village-level organisations exist for tending to the interests of the inhabitants as a self-reliant collectivity in formerly ryotwari areas as

47. Srinivas (1955) brings out how the informal council dispensed justice through village elders who were familiar with the persons and the circumstances surrounding the issue.

48. In the context of Rajasthan, see, for instance, Oomen (1984); Sharma (1974).

49. On the basis of medieval documents, Sharma (1985:156) recounts that grazing lands in Rajasthan "were the common property of the village as a whole or of several villages jointly."

50. Baden-Powell (1899).

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that the tendency of the state to monopolise control over natural resources had threatened resource viability at the local level and given rise to tensions between the village and the centre.

Village convention in relation to the commons appeared to be more just than the formal legislation. It is therefore, imperative to delve into what is objectionable about a local convention before rejecting the 'common law' or legislating contrarily. The resilience of conventions governing grazing lands even in the face of the onslaught of the law persuades us to inquire into the rationale of both.

In Rajasthan, as in most other states, the unit demarcated for co-operation under the panchayati raj Acts, -- the gram panchayat, -- was based on the size of the population or the revenue unit of a patwar circle. It was not co-terminus with the corporate entity of a village though the rationale for administrative expedience was apparent. The custodian of village common property, was conventionally confined to village residents but the State Govt. had devolved this responsibility upon the gram panchayat or taken it on itself. This shift undermined the role of the informal village-level organisation in handling issues pertaining to what the villagers regarded as their common property. It became an extra-legal authority that prevailed while the govt. attempted de-centralisation through panchayati raj.

The formal gram panchayat was, however, seen by the inhabitants as another agency of the govt. and not a genuine embodiment of local aspirations. Recent commentators have in fact, reiterated the view that panchayat plans have never formed the basis of block plans[55]. Block plans, in turn, have often been progress reports of a scheme or annual budgets without any statement of a plan or a goal. Similarly, the parishad plan was a statistical summary and a statement of central schemes proposed for rural development. As such, planning was not de-centralised or participatory.

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55. See, for instance, Neale (1985).

The one-village, one panchayat model should have been considered as an alternative to the existing gram panchayat on three counts[56] : (i) the village conformed to a conventional unit of cooperation although further de-centralisation at the mohalla (residential ward) or dhani level did occur; (ii) the interests of small villages that have, more often than not, been bypassed in the electoral politics of numbers would have been more favourably represented tending toward equity; and (iii) the focus on micro priorities may have facilitated villagers to plan in their particular contexts.[57]

The law-makers had laid out provisions for the co-option of scheduled caste and women panchas on the formal gram panchayat in the pursuit of social justice. This was rightly seen as an area where the writ of convention had to be resisted. On these grounds, we find that the laws enabling the political participation of scheduled castes were least effective at the gram panchayat and panchayat samiti levels.

Having conceded the principle of the 'reservation' of political constituencies for scheduled castes in the Lok Sabha and the Vidhan Sabha, this principle should have been extended to the gram panchayats and panchayat samitis as well[58]. The inability of scheduled castes to be voted as sarpanches and pradhans was glaring. By 'reserving' scheduled caste political constituencies on the basis of their proportion in the population and delimiting them on the same criterion as for the MLA and MP seats, the representation of scheduled caste members in the panchayat samiti could have been improved. The co-option of scheduled caste

56. The idea of a one-village one-panchayat was mooted by Siddhraj Dhadda in a dissenting note that accompanied the Report of the Ashoka Mehta study team on panchayati raj (1978). Dhadda (1978:178) writes that to speak of democratisation for inhabitants without taking the village as the primary unit of panchayati raj " has no meaning when the opportunity for them to do so at the only level where they can effectively function is denied to them". Report of the Committee on Panchayati Raj Institutions GOI (1978).

57. The recognition of smaller units for local self-governance and cooperation has been a recurring theme in recent 'development' literature as well. See, for instance, Alger (1978); Haque et al (1977).

58. This suggestion, again, has been put forth in the Ashoka Mehta Report on panchayati raj institutions (1978) as well and has been legislated upon in Karnataka recently. For details, see Chandrashekhar (1984).

panchas in the gram panchayat and panchayat samiti had clearly been ineffective since their presence was at the behest of the elected representatives.

Galanter (1979:1984) has adduced considerable data to show that the representation of scheduled castes in the Lok Sabha and Vidhan Sabha is mainly through 'reserved' constituencies. Ensuring this reform at the gram panchayat and panchayat samiti levels was likely to be worthwhile on three considerations. First, scheduled caste interests would be articulated even in the villages of tehsils and districts that did not, at present, form 'reserved constituencies' at the MLA and MP levels. This would tend toward a more broad-based representation of their interests. Secondly, the reservation of constituencies for scheduled caste sarpanches in the gram panchayat was less likely to 'distance' the leaders from their constituents in a manner that was striking for state and central representatives[59]. The chief argument posed against the 'reservation' of seats for scheduled caste MPs and MLAs has, in fact, been that the latter have become an elite, removed in time and space from their brethren (Galanter, ibid). Thirdly, it may be feasible to check some of the resentment that has arisen among non-scheduled caste residents in 'reserved' constituencies at the MLA level vis-a-vis the 'open' constituencies by reserving constituencies for scheduled castes in gram panchayats and panchayat samitis in these areas as well.

Few women have been elected to the gram panchayats in Rajasthan as in the country as a whole[60]. The co-option of women, where they are not elected in the normal course, has evidently been a formal compliance with the letter of the law. Their empowerment is a pre-requisite for the articulation and assertion of their priorities.

Lastly, the relation between custom and law has to be investigated with a view to discerning the conditions under which the two diverge,

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59. Shakir (1980:225) argues that the "minority communities are overwhelmingly rural but their representatives are urban, educated and cannot 'voice the real grievances' of the communities".

60. GOI (1978).

merge or act as supplements to each other[61]. This is especially important when the govt. itself has been forced to recognise that the successful gram panchayats have sparingly, if at all, used the authority bestowed on them by the law[62]. We have attempted to show that both formal laws and informal conventions have a potential for justice. Their assumptions need to be postulated and debated more than they have been so far. What appears to be 'normatively' 'just' may be 'processually' unjust and therefore, warrants re-thinking.

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61. Cf. Shanin (1972).

62. Govt. of India (1960).

DRAFT

PROPERTY, AUTHORITY SYSTEMS, AND THE ARTFUL STATE

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PROPERTY, AUTHORITY SYSTEMS, AND THE ARTFUL STATE

Daniel W. Bromley

I am concerned here to explore the institutional foundations of the economy--with particular reference to management regimes for valuable natural resources. A management regime is an authority system, and it is only from coherent authority systems that one has a regime of secure property rights. The artful state stands as the single most detrimental force regarding the existence of meaningful authority systems for resource management regimes.

I. THE INSTITUTIONAL PROBLEM

The single compelling problem for any society (or nation state) is how it shall "organize itself" for its provisioning, and for its reproduction. Cast in this way, one tends to turn the usual economic problem on its head. Conventional economics, starting from methodological individualism, tends to see the social problem as one of constrained individual choice given limitless wants. I am much more interested in the former view because it has the salutary effect of reminding us that institutional design is at the core of social policy. Rather than starting with several metaphors--the "rational" individual, the "market," "government"--my approach starts with the essential fact that collectives can design the institutional foundations of their economy and society in a number of ways. The "market" is not some standardized and universal construct that is pulled off the shelf but is, instead, a product of institutional design at a higher level.

Public policy is about intentions, rules, and enforcement. The policy problem is: (1) to aggregate preferences to inform collective intentions; (2) to formulate rules to channel individual avarice and inertia; and (3) to implement compliance mechanisms such that the intentions are--as nearly as possible--accomplished. In my Economic Interests and Institutions [1989a] I suggest a policy hierarchy as shown in Figure 1. Here we see a policy level where intentions are promulgated. Institutions, or rules and entitlements, define certain organizations which will, in turn, formulate their own institutions with respect to the policy problem under consideration. These institutions then become the "working rules of going concerns." More specifically, these institutional arrangements define the choice sets from within which individual economic agents can pick courses of action.

Our interest in institutions arises because this regularizing aspect in individual and group behavior represents the very essence of interpersonal economic transactions. It is the existence of institutions that permits us to carry on our daily lives with a minimum of repetitive and costly negotiation; that is, institutions reduce transaction costs. Institutions are:

> ...sets of rights and obligations affecting people in their economic lives. Some of these rights and obligations are unconditional and do not depend on any contract (other than the fictitious "social contract"); these may or may not be inalienable. Others are acquired voluntarily, by entering into contracts. Some contracts are explicit, others are implicit in conventions recognized by both parties. Contracts may relate to the exchange of goods or services or money or authority in varying proportions. A system of institutions can thus be described more or less equivalently...as the set of rights and obligations in force; or in the parlance of sociology and social anthropology, as a role-system or status-system; or in the parlance of economics as defining: (i) what markets exist, taking market in the broadest sense, to include all voluntary exchange; and (ii) how economic relations are regulated in areas where markets do not exist [Matthews, 1986, p. 905].

The concept of an institution encompasses two related dimensions. The first of these reflects a regularity in human behavior based on shared

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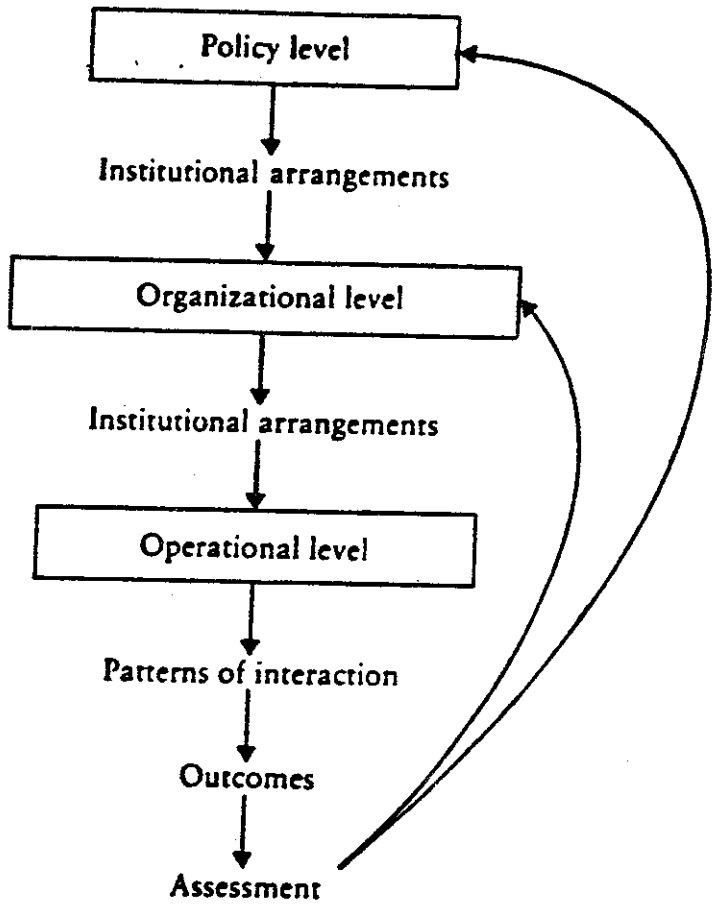

Figure 1. The Policy Process as a Hierarchy

preferences and shared expectations of the actions of others, while the second is based on a socially sanctioned and enforced set of expectations of the actions of others. That is, institutions are capable of being demarcated into two classes: (1) conventions; and (2) rules or entitlements. A convention is a regularity in human behavior that brings order and predictability to human relationships. An entitlement is a socially recognized and sanctioned set of expectations in a society with regard to de jure or de facto legal relations that define the opportunity sets of individuals with respect to the opportunity sets of others [Bromley, 1989a].

That is, conventions depict social institutions that arise to coordinate behaviors derived from shared preferences over outcomes but indifference over means, and entitlements depict social institutions that arise to regularize behaviors in the face of discordant preferences over either social ends or means [Bromley, 1989a]. John R. Commons defined an institution as: "...collective action in restraint, liberation, and expansion of individual action [Commons, 1961, p. 73]." Commons, who initiated the term "working rules of going concerns," suggested that such rules indicate what:

> . . . individuals must or must not do (a duty), what they may do without interference from other individuals (privilege), what they can do with the aid of collective power (right), and what they cannot expect the collective power to do in their behalf (incapacity or exposure) [Commons, 1968, p. 6].

Notice that these rules give rights in that one can undertake certain actions with the "aid of the collective power." Notice also that duties are implied in the phrase that there are certain things which an individual must or must not do.

The state--the collective power to Commons--is behind every transaction in that the state agrees to come to the aid of those with rights, and to prevent (or to compel) certain actions by those with duties. Indeed, the very meaning of a right is that one can count on the state to protect your interests. Recognizing that the state is a party to every transaction, we can then quite easily see that the state must take an interest in which transactions it will sanction. To return to my opening comment, the problem for the state is to decide how to organize itself; one central aspect of how the state organizes itself concerns which kinds of transactions the state will sanction.

Of immediate relevance to our concerns for ecological resources, the policy problem is to formulate resource management regimes whose purpose is to create authority systems which mediate how individuals act with respect to each other over access to, and use of, various natural resources. The grand dichotomy is, of course, between individualized property regimes and state property regimes. We must also take note, however, of common property regimes. Property regimes take on their special character by virtue of collective perceptions regarding what is scarce (and hence possibly worth protecting with rights), and what is valuable (and hence certainly worth protecting with rights). Property rights are an instrument of social policy, and particular property regimes are chosen for particular purposes. I suggest that we might usefully give further consideration to the above three general types of property regimes.

In state property regimes individuals have a duty to observe use and access rules determined by the managing agency, and such agencies have a right to determine use and access rules. In private property regimes individuals

have a right to undertake socially "acceptable" uses, and have a duty to refrain from undertaking socially "unacceptable" uses. Others ("non-owners") have a duty to refrain from preventing socially acceptable uses, and have a right to expect only socially acceptable uses will occur. In common property regimes the management group (the "owner") has the right to exclude non-members, and non-members have a duty to abide by exclusion. Moreover, individual members of the management group (the "co-owners") have both rights and duties with respect to use rates and maintenance of the thing owned. Finally, in the regime that Demsetz, Hardin, and others mistakenly refer to as "communal property", one really has non-property (res nullius). Here, there is no defined group of users or owners and so the benefit stream (the property) is available to anyone who chooses to exercise access to the asset. Individuals in this setting have both privileges and no rights with respect to use rates and maintenance of the asset. The asset is an open-access resource [Bromley 1991, 1989c].

With the recognition of the critical role for rights and duties as necessary preconditions for the existence of property regimes, it seems useful to focus on property regimes as authority systems. This emphasis is necessary because the essence of property rights is a structure of rights an duties that will give any particular benefit stream protection against adverse claims. And where does that protection come from if not from the state? By this I do not necessarily mean some remote central government. I mean simply a unit of coercion that has the legitimate sanction to enforce structures of rights and duties.

I am concerned with authority systems precisely because a property regime is an explicit (or implicit) structure of rights and duties characterizing the

relationship of individuals to one another with respect to that particular resource. New institutional arrangements are continually established to define the property regime over land and related natural resources--whether that regime be one we would call state property, private (individual) property, or one of common property. These institutional arrangements define (or locate) one individual vis-a-vis others, both within the group (if there is one), and with individuals outside of the group. By thus defining one individual's choice domain vis-a-vis that of others, property rights indicate who has the legitimate authority to act in a predetermined manner. This authority, coming as it does through officially recognized property relations, carries the implicit backing of the state. Officially sanctioned property rights mean, at bottom, the willingness of the state to step in to protect the interests of those holding the property rights under discussion. Without effective (or credible) enforcement one has anarchy; small wonder that the relentless theme of the propertied classes down through history has been to insist that the primary function of the state is to protect private property. One searches in vain for the dispossessed making a similar argument.

In summary, we can define property relations between two or more individuals (or groups) by stating that one party has an interest that is protected by a right only when all others have a duty. It is essential to understand that property is not an object such as land, but is, rather an income stream that is only as secure as the duty of all others to respect the conditions that protect that stream. When one has a right one has the expectation in both the law and in practice that their claims will be respected by those with duty. But whence comes duty?

II. LEVIATHAN IN THE SERVICE OF RESOURCE MANAGEMENT

It is commonplace for some observers, and usually those interested in celebrating the individual as opposed to the "oppressive state," to conjure Leviathan as the antithesis of all that is great and good. We are told that if only one could exorcise the image and the tendencies of Leviathan from the modern state, bliss would prevail. This metaphor tends to obscure an essential aspect of any property regime. Specifically, any operational resource management regime requires the coercive power of the state to give rights and duties effect. While the metaphorical Leviathan may indeed trample on everyone, any property regime is meaningless in the absence of a Leviathan in the service of those deemed to have rights--and against those deemed to have duties.

Notice that the issue is not one of Leviathan versus bliss, but rather whose interests Leviathan will serve? Those who posit Leviathan as the opponent of the individual have in mind a dyadic relationship in which individual property rights are undermined by an all-powerful state. However, such arguments are flawed by their failure to recognize that in the absence of Leviathan, the very private property rights so dear to those lucky enough to have them would have no meaning. There is only Leviathan to stand between those well served by such property rights and the dispossessed. What then are we to make of the Leviathan metaphor?

There are two essential tasks for a Leviathan in resource management regimes--whether private property, common property, or state property. The first task pertains to establishing the legitimacy of a particular natural resource management regime in the eyes of others who may covet the assets

under control of the right holder(s). This is essential in private property regimes, in common property regimes, and in state property regimes. I call this the problem of establishing external legitimacy. The second task pertains to establishing legitimacy within particular resource management regimes. I call this internal legitimacy.

A. Fostering External Legitimacy

The history of much natural resource policy in the developing countries has been one of persistent governmental interference in--or indifference toward--local-level natural resource management regimes. This interference, or this indifference, has meant that external threats to such regimes by squatters and by the spread of sedentary agriculture have been either promoted or tolerated by the central government.

We know well the fact that in 1957 the government of Nepal expropriated forest lands under the administration of local jurisdictions--mostly village governments. The Nepalese government is now embarked on a program to return management control over these forests to the villages [Bromley and Chapagain, 1984]. These transitions in perceptions of legitimacy of local-level resource management regimes by the central government are profoundly destructive of the management regimes they hope to supplant. Once the habit of management is lost at the local level--and the expectation of compliance with local-level institutional arrangements--it is not easily restored.

There are more subtle ways in which Leviathan fails to act in a way that fosters the perception of legitimacy of resource management regimes. The willingness of the state to legitimize certain resource management regimes is partly explained by the state's perception of the importance of the

individuals or groups who make up the constituents for those regimes. If pastoralists are regarded as politically unimportant then those resource management regimes central to pastoralism are vulnerable. If those threatening pastoralist regimes have more favor from the state then protection of pastoralist regimes will be indifferent. If it is the poor who are inordinantly dependent upon the village commons [Jodha, 1986], then governmental indifference to the plight of the poor will mean that the village commons is available for others to plunder with impunity. A common property resource (res communes) becomes, in the absence of Leviathan, an open access resource (res nullius).

Here the central government could empower (even demand) local jurisdictions to undertake collective management of non-private lands. In most settings the national governments do not have the requisite staff to manage these lands as state property, and the absence of effective administration means that resource management is absent.

There is, of course, ample empirical evidence to suggest that local units may be no better at innovating and maintaining successful management regimes than central governments have been. While true as it stands, this observation fails to inquire about the causes of failures of local-level management systems. Did they fail because of internal contradictions and pressures? Or did they fail because of systematic breakdown of critical relations in the larger economy and polity? I suggest that the answer to this question is central to the probable success of new local resource management regimes. In the absence of that answer it is insufficient simply to point to past failures as evidence of future failures. Analysis of both failed and successful

resource management regimes is the prerequisite to informed policy advice in the tropics.

B. Fostering Internal Legitimacy

The internal legitimacy of a resource management regime affects the degree of compliance with the evolved institutions that define that regime. This is most apparent with common property and state property regimes. Compliance is, to a certain extent, a matter of expectations regarding the actions of others. If the expectation begins to form that others are not abiding by the understood norms and conventions of the regime then there will be a diminished incentive on the part of any one agent to continue to abide by the rules of the regime. Once this perception spreads, and in the absence of aggressive enforcement, it will be only a matter of time before the regime degrades into anarchy. A common property regime, or a state property regime, become, de facto open access.

Though it may require a moment's thought, even private property regimes require "internal" legitimacy. That is, the presumption of private property regimes is that the owner exercises the socially acceptable behavior with respect to the privately held object. A farmer's management practices hold implications for soil erosion and the presumption of private ownership is that the actual rate of soil erosion in a private property regime is the "socially acceptable" erosion rate. However when that erosion begins to foul downstream rivers and lakes then the putative optimality of that particular property regime is called into question. While such concerns do not undermine the external legitimacy of private property in general, these concerns do undermine the legitimacy of certain behaviors on erosion-prone agricultural

lands. The internal legitimacy issue here concerns the behavior of an owner of an asset in a property regime that has external legitimacy. As with common property regimes, there are norms of behavior that attend a private property regime. When behaviors violate those norms then the internal legitimacy of the regime is challenged.

In much of Asia, the effort to foster internal legitimacy might well focus on establishing (or reinvigorating) common property resource management regimes. This may seem paradoxical since some will imagine that the original problem arose because of "common property." However, the earlier discussion of the distinction between common property and open access should dispel that confusion. It is now well recognized that a common property regime is defined by group ownership in which the behaviors of all members of the group are open for all to see. In the developing countries it is quite reasonable to suppose that conformity with group norms is an important sanction against antisocial behavior. An effective common property regime thus has a built-in incentive structure that encourages compliance with existing conventions and institutions. Another way to put the matter is to point out that in social settings in which individual conformity to group norms is the dominant ethic, common property regimes offer the very incentive structure that is vital for effective performance.

The essence of any property regime is an authority system that can assure that the expectations of rights holders are met. The presence of compliance through the expedient of an authority system is a necessary condition for the viability of any property regime. Private property would be nothing without the requisite authority system that makes certain the rights and duties are adhered to. This same situation exists for common property. When the

authority system breaks down--for whatever reason--then common property (res communes) is converted into open access (res nullius). It is not the property regime that explains compliance and "wise" natural resource use. It is, instead, the authority system that insures that the particular property regime is adhered to [Bromley, 1991].

In common property regimes two problems have arisen. The first is that a breakdown in compliance by co-owners has occurred because of the loss of opportunity arising from changes elsewhere in the economy. With scant economic opportunity to attract away population growth, the numbers of individuals being sustained by a fixed resource base grow until degradation is the logical outcome. The second problem arises if privatization is occurring in the immediate area which then precludes seasonal adjustments to highly variable resource conditions. Ultimate degradation of the resource may result if the users have no other alternatives.

The investment in--or improvement of--dysfunctional resource management regimes must first focus on the institutional dimension. If property and management arrangements are not established and secured through a meaningful authority system, and if there is investment in the form of a capital asset such as improved tree species or range revegetation, the institutional vacuum of the status quo ante will practically insure that individual resource use rates will eventually deplete the asset.

Recall that open access is characterized by the absence of an authority system whose purpose is to assure compliance with a set of behavioral conditions with respect to the natural resource. Valuable natural resources available to the first party to effect capture are de facto open access resources through a series of institutional failures that have undermined

rmer collective management regimes. In a situation of dysfunctional common operty each potential user has complete autonomy with respect to use of the source since no-one has the legal ability to keep others out. That is, the tural resource is subject to the rule of capture and belongs to no-one until is in someone's physical possession. There are no property rights in this gime, there is only possession.

Property rights--a social contract that defines an individual and an ject of value vis-a-vis all other individuals--cannot exist when an dividual must physically capture the object before he/she can exercise fective control. Having property rights means not having to stand guard er something; the social recognition that gives property its content means at others have a duty to respect the owner's interest in the thing owned. nce with many institutionally and physically degraded resource regimes, the cessary precondition for any successful development assistance effort is at the property regime be converted away from open access. Recall that a mmon property regime at the village level constitutes private property for e group, with the attendant co-equal rights and duties for the individual mbers.

III. WHITHER LEVIATHAN?[1]

The popular image of the degraded commons has been with us now for two cades, pretending to explain any number of unfortunate circumstances from pulation growth to over-fishing of the high seas, and poverty in the graded deserts of the tropics.[2] In pursuing this discussion of the commons will be argued that the real tragedy of the commons is the process whereby

indigenous property rights structures have been undermined and delegitimized. This destruction of local-level authority systems will be seen as the principal cause of natural resource degradation in the tropics. A second dimension of that tragedy is the rather complete failure of the newly independent nation states to establish the implicit and explicit legal foundations of an economy and society that will guide individual actions toward social betterment. This discussion, therefore, concerns two forms of institutional failure following independence from colonialism.

The two aspects of institutional failure that have undermined property relations in natural resources are related, and both lead to the degradation of natural resources and poverty that are of so much concern today. The failure of nation states to create the institutional preconditions for economic growth and development means that most economic activity is plagued by strategic uncertainty--a situation in which economic actors are precluded from maximization by the ever-changing nature of the "rules of the game." This fluid condition, what Gunnar Myrdal called the <u>soft state</u>, means that the family and the village become the primary unit for economic exchange. In more familiar terms, subsistence production tends to dominate much of agriculture. With the institutional foundations of the economy being ineffective in providing the secure basis of economic calculation over space and time, we also find that social sanctions and conventions regarding land and natural resource use are either absent, or contradictory. This situation can be thought of as arising from an <u>institutional vacuum</u>, or from <u>institutional dissonance</u>. In either case, independent economic agents are, for the most part, left to their own wile and creativity to assure survival. While it can be debilitating enough in an urban setting, the effects in a rural area will

be much more profound. This urban-rural difference exists because transaction costs--the costs of gaining information, the costs of contracting with others, and the costs of enforcing contracts--are much higher in sparsely settled rural areas.

Many governments in the developing world, unstable, insecure, and usually preoccupied with maintaining their own legitimacy, view the rural hinterland as either irrelevant, or as a domain to be plundered for the benefit of the urban classes from whence power and legitimacy flow. The hinterlands are convenient because they can deliver agricultural products to the urban masses, and raw materials with which foreign exchange can be earned. The political and economic autonomy of the rural village is not only deemed to be unnecessary, but positively feared. Destruction of natural resources is the logical outcome of these circumstances, and such practices continue because they serve the interests of the national government. This is the tragedy of the commons that shall concern us here.

The issues are not trivial. First, a good share of the raw materials of such great fiscal importance to the newly independent nation-state originate on lands that are in the public domain, by which I mean non-private (free hold) ownership. The plundering of these resources and those lands is one tragedy of the commons. The other tragedy refers to the intangible commons, by which I mean the collective good we know as <u>the legal foundations of the economy</u>. Colonialism first, and then the new nation-state, both had much to gain by destroying existing institutional arrangements that governed village life. This destruction, and the subsequent failure to replace it with a nation-wide institutional infrastructure that I call the legal foundations of the economy, comprise the second tragedy of the commons. The tragedy of this

institutional vacuum in the developing countries means that economic activity is restricted in scope and time. This institutional vacuum, and the attendant poverty of people at the village level, then give rise to the tangible tragedy of resource destruction of so much concern [Larson and Bromley, 1990]. The continued livelihood of approximately three-fourths of the world's population depends upon land and related natural resources that is adversely affected by a situation of institutional disarray. If resource degradation problems are to be solved, they must first be understood, and if we are to understand resource degradation then we must understand human behaviors with respect to those resources. The behaviors that now seem so threatening to natural resources are the product of a constellation of rules and conventions. If we are to understand resource degradation then, we must first comprehend the full array of these incentives, sanctions, rights, duties, privileges, and exposures to the actions of others.

I start by focusing attention on the village or local community as an authority system, and as the logical center of attention for any program concerned with enhancing the nature and extent of wise use and management of natural resources. I will argue that the former political and economic cohesion of the village has largely disintegrated and therefore villages have lost their ability to exercise control over the actions of their residents with respect to natural resource use.

Consider first the role of villages in south Asia prior to the complete spread of colonial administration. At that time the village was a territorial concept, not necessarily identified with any particular group of households or families. Still, all households within a specific Cartesian place were of one village. Households had a common and customary obligation to one another in

matters both social and economic. While they had other bonds as well--caste, religion, kinship--the principal bond was territorial (the village) [Gupta, 1964]. The essence of village life was a structure of authority and control, encompassing both permission and restraint, within which all human endeavor operated. Prevailing status and authority systems left few in doubt as to their domain of choice in a number of private and public affairs. Indeed, one could argue that the very purpose of a village was to serve as a locus of control and cooperation such that the welfare of the group would be enhanced. If villages did not serve this purpose we would not observe them; rather, individuals would live in scattered arrangements with no apparent purpose or pattern. The village was, therefore, an economic and social unit of great significance to the use and management of land and related natural resources. This significance can be understood by considering the relationship of rights in land to the political structure of the Indian village:

> The non-landholding households, customarily as well as socially, were subordinate to the landholding interests. Nevertheless, the village community did enjoy a very efficient system of self-government. The secret of its success lay in the nature of property in land and the various other allied institutions that subsisted in the village. As long as rights in land were governed by rules and customs which prevented the emergence of great disparities in wealth and income and conflicting rights over land within the village, the system of self-government remained efficient. But a change in the institutions of landed property led almost immediately to its decay [Gupta, 1964, p. 105].

Notice the link between the political structure and the economic structure of the village. In pre-British India:

> ...land was not considered property in the European sense...the legislative introduction of the concept of real property around 1800 was a measure the seriousness and consequences of which are still difficult to gauge precisely...The "King's Portion," the peasant's payment for protection, was the most important state revenue. In the eighteenth century it amounted to between 30 and 50 percent of the harvest. Often

> paid in gold, it presupposed at least a rudimentary money economy and markets for agricultural produce. The tax...was uncommonly high, and for this reason one ought not to idealize the precolonial period. In practice, the modest profits of the peasants were siphoned off by the state, which used them for paying officials, waging war, and supporting a sumptuous court. It did not reinvest them in land. The situation recalls ancien regime Europe [von Albertini, 1982, p.27].

The effectiveness of the village as an authority system was dependent upon the exercise of influence and control over actions of members of the community. Part of the role of a village was to mobilize internal resources in its own defense against external forces. In early days those external forces were military in nature. With the rise of the modern nation-state, the military threat was replaced by the ever-present economic buffeting of national policy and political priorities. Prior to colonialism, ruling monarchs/leaders exercised control over the political and economic life of villages. The villages were not only suppliers of necessities for such leaders, but local outposts of control and authority over scattered peoples in the hinterland. The political legitimacy of the ruling entity was secured through the extension of representatives down through the political structure of regional town, and ultimately, rural village.

During that time the question of who actually owned land was not as important as it was to become later. What was clear, however, was that land could not be alienated. Any villager in need could go off and seek a new allotment of land if taxes or debts became too burdensome. The availability of surplus arable served to relieve population pressure against the land. It was near the mid-eighteenth century that the old relationship between labor and land began to change. Prior to that time the competition had been for

scarce labor to cultivate abundant arable; after that time the competition was for scarce land to be cultivated by an abundant and increasing peasantry.

The disintegration of the important role played by villages in India can be traced to the introduction of new land laws, the related intrusion of urban interests into the rural village, the opening up to external trade and markets, and the centralization of revenue and judicial administration leaving the village panchayats with little or no formal role. The village structure continued to function much later in south India than it did in the north, primarily due to the greater degree of external influence in the north. Even at that, the village in the northern areas was still viable until the end of the eighteenth century. When the British conquered the Punjab in 1848, villages were still a dominant part of Indian political and economic life [Bhatia, 1964].

With the full spread of colonization, much of this political and economic structure--already under stress--was finally destroyed. The essence of colonial administration was to harness the political power of the villages to secure legitimacy for the alien power. It became necessary to undermine existing authority systems responsive to the pre-colonial rulers, and to supplant them with authority systems that would be responsive to the interests and imperatives of the colonial administration. When the British came to India, those areas of permanent settlement (Bengal and Bihar) were originally administered in a way that tax collection was the major change in pre-colonial life. Where the tax contribution was a fixed amount, administrative penetration was less than in other areas where assessment of taxes was regulated directly with the peasants and villages. Here the British did not

interfere much with village life and made no attempts to force modernization or westernization.

With the establishment of the office of tax collector in Bengal and Bihar in 1765, the East India Company faced the question of who was to collect the taxes and what was to be done with the zamindars. It was not clear to the British whether zamindars were concessionaires or true landowners. What was clear was that the bulk of the taxes flowed into the pockets of the zamindars and their subofficials. In 1772 the Company took collection into its own hands. Because the Company had no way of knowing how much profit the zamindars were making it decided to auction off the right to be a tax collector for a five year term. This policy was designed, as well, to protect the peasant farmers against excessive exactions by overzealous zamindars. But the policy was unsuccessful. City businessmen who often had made their money as moneylenders or as intermediaries for the East India Company outbid the old zamindars. Unlike the zamindars, these new tax collectors had little interest in the long-run viability of peasant agriculture. The entry of this new class of tax collector led to a significant increase in taxes which severely burdened the peasants.

In the southeast of India, and also around Bombay, another system was tried after attempts to auction off collection rights were abandoned. The zamindar was eliminated in favor of direct ownership by the peasant farmer. A tax assessment was levied on the basis of yield relationships, with the expectation being that private ownership would bring the individual peasant prosperity and enable him to invest in improvements. Taxes still remained high, and reductions for bad harvests were only grudgingly conceded. During this period the colonial administrators seemed to want to hold the village

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together as an administrative unit, and possibly to strengthen it. But by establishing private property and direct assessment they loosened the ties of a society based on caste and customary law and stripped the village headman of his most important function.

> The old idea that rights to the product of the land were determined by social origin and caste status was displaced by the concept of private property, which 'mobilizes' the land and permitted it to become a trade good. It heightened rather than reduced inequalities and dependency within the village. Combined with high taxes and rents and a legal system protecting owners, the system encouraged the indebtedness of the renters and ryots and thus imposed a new dependency upon the moneylenders. A real crisis in Indian agriculture was becoming apparent as early as the mid-nineteenth century. [von Albertini, 1982, p. 32]

The individualization of village life, fostered by the privatization of the better village lands, left the peasant increasingly dependent on the market, the remaining village land that had not been appropriated by the village elites, and on the moneylender. Of course moneylenders had been around for millennia. Still, the power of the moneylender was circumscribed; he had to follow village custom and had no recourse to the state or the courts to collect his debts. Indeed, there were usually strict prohibitions against [illegible]ure of land for the non-payment of debt. By the time of the Sepoy Rebellion (1857) the sale of land for delinquent taxes had virtually ceased, but the forced sale of land for delinquent debts had become "very frequent [Bhatia, 1964, p. 98]."

> The original owners of land were being rapidly dispossessed of their rights in land by the moneylenders and the landlords and were rapidly being reduced to the position of tenants-at-will. This revolution in the property relations had [a] far-reaching effect on the structure of the agrarian society. The village community lost its authority and gradually disintegrated. The village headman who was previously a representative of the community now became an official of the State or of the landlord. In

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> the past it was the village community which approved the transfer of land from one member of the community to another and allotment of lands to an outsider; no such collective sanction was now needed for affecting transfers. Again, the common rights in the waste-land attached to the village and the functions of constructing and maintaining works of irrigation and distributing water from these were performed by the village community. This right was now taken away from the village community. On the forests and waste-land of the village, the landlord came to have an absolute right in the zamindari areas. In the ryotwari areas, waste-lands continued to be treated as the joint property of the landowners in the village, each possessing rights in the waste-land proportionate to the arable land possessed by him. By the middle of the nineteenth century, village communities had lost much of their influence and prestige and were disintegrating. [Bhatia, 1964, pp. 98-99]

It would not be correct to assume that all of these forces leading to the disintegration of the village were the result of colonial rule; many changes were underway prior to colonial intrusion. But of course the subsequent introduction of new land laws and the civil courts sealed the fate of the villages as authority systems.

Turning to the African continent, we see similar forces at work, with the French being particularly contemptuous of indigenous land-use practices and institutions. In northwest Africa, especially in current-day Algeria, Tunisia, and Morocco the French encountered a thinly settled nomadic (or pastoral) peoples in the dry mountainous regions of the hinterland. The French appropriated a portion of the lands unclaimed by the tribes or claimed only on the basis of custom, while the tribes were given firm title to what the French did not want. This process of expropriating land severely restricted tribal territories and thus led to increased crowding of the nomads. The predictable result was overgrazing on those limited areas still accessible to nomadic herders. As with other colonial administrations, the French wanted firm individual land titles, and so a way had to be found to sell land under Muslim law.

There was both government and private colonization. The government side of it entailed the establishment of entire new villages in barren areas, but the private colonization was the more important. In 1873 the French sought to break up the collectively owned melk lands by decreeing that individual plots must be established to become the private property of individuals under French law. If only a single collective holder desired individualization, then it was required to occur, regardless of the wishes of the other collective owners. The result was a plundering of tribal properties, and an increase in lawsuits. In the process, Frenchmen, but also urban Algerians and other notables acquired large estates. French land holdings doubled in the twenty years between 1870 and 1890--from 800,000 ha to 1.6 million ha. By 1930, 26,153 Europeans owned 2.3 million ha, compared to 7.7 million ha owned by only 617,543 Algerians [von Albertini, 1982, p. 268].

While the French claim to have been interested in transforming herdsmen into sedentary peasants--and one may reasonably ask why[3]--they later admitted that the imposed changes merely shattered the social structure of the herdsmen. Elsewhere, evidence shows that the traditional transhumance had been restricted, meaning that European land sequestration had prevented the hill tribes from wintering their stock in the fertile plains. The partial shift to private ownership even on collective tribal lands had also led to serious social differentiation.

The British in West Africa were not markedly different. They instituted, as in India, "indirect rule." In West Africa this structure had two dimensions: (1) chiefs had their own funds--half of all taxes went to British administration, but the other half remained available for local expenditures on salaries, roads, and festivities; and (2) chiefs retained certain

jurisdictional competence and administered justice in the native courts. Indirect rule in Northern Nigeria had some positive effects. Raiding parties and warfare ceased. Slavery and the slave trade were gradually eliminated. On the other hand, the colonial administration was conservative and had some reactionary effects to the extent that a feudal social order was shielded from most modernizing, if disintegrating, influences.

Unfortunately, indirect rule proved more troublesome in southeastern Nigeria. Here, Ibo social structure was based on the village and the clan. While indirect rule was indeed conservative, it did have some positive aspects. The British did not treat the traditional social structures, religious ties, and customs with the disregard or scorn typical of many missionaries, or indeed of those within the French administrative service. In the far west--the Gold Coast--cocoa production expanded rapidly because it fit in well with the traditional economic and social structure. Lots of land "belonged" to the tribes, villages, and clans, but the produce from it went to the individual farming family. Immigrant families "rented" land, cleared the jungle, and planted both foodstuffs and cocoa seedlings, which bore fruit in 4-6 years. But erosion and a retreat of the forest began. Additionally, more profound changes were underway.

> In the chief cocoa areas food production declined and there was a corresponding rise in imports from neighboring regions or from overseas...It also sometimes happened that...there was too little to eat...A social transformation began. There was not only a rapid shift from a subsistence to a money and market economy, but also individualization and social differentiation. Enterprising Africans established large holdings, sometimes purchasing those of Europeans, in one or several locales. The chiefs also engaged in trade or became planters. Labor had to be brought in, and thousands of seasonal laborers came during the following period from the north or from French territories in the cocoa region [von Albertini, 1982, p. 321].[4]

Moreover,

> The land was also subjected to this individualization process. In the strict legal sense private property in land was not possible, but nevertheless forms were developed for the acquisition of land that closely approached individual ownership. This phenomenon was more pronounced in the Gold Coast than in Nigeria. Anyone planting seedlings that would bear only after some years wanted a secure title. The administration helped, but found itself on the horns of a dilemma, because it both wished to maintain collective ownership and yet considered making the land individually owned and private property the prerequisite for economic and social progress. Sale of land was thus in practice possible. Still, difficulties occurred with such transfers because of a lack of fixed titles and cadastres. During the interwar period experts critically noted the increase in litigation about land questions, the origin of which was often farmer indebtedness [von Albertini, 1982, p. 321].

The development of British West Africa in the late nineteenth century and the early twentieth century was primarily based on the expansion of three main crops--palm, cocoa, and peanuts, with rubber and cotton being of secondary importance. As is often the case, European demand fueled the expansion, and British colonial rule provided the supportive economic environment in which productive capacity was able to expand. British indirect rule basically recognized the precolonial authority structures and limited itself to supervision and advice to these local entities. The French shattered and largely eliminated the traditional African ruling classes in order to create a centralized hierarchy that reached clear down to the village heads that they installed. The British wished to produce "good Africans," while the French wanted to produce "good Frenchmen" who could speak proper French, and aspire to Lyonnaise cuisine.

The Belgians in central Africa followed standard colonial practice by first declaring all non-cultivated land to belong to the colonial administration. Likewise, the Germans in Africa declared that all land not subject to well-founded third-party claims--the so-called ownerless land--was

Crown land and thus state property which the governor was empowered to sell or rent. The Germans were careful not to interfere with the occupied lands, less out of benevolence or recognition of indigenous rights than to the sheer abundance of land. The Germans knew full well that so-called "ownerless" land did not exist according to customary law, and that the colonial government would have been able to retain no land whatsoever for plantation companies if the claims of the local population were recognized in their fullest extent.

Portugal, like France, followed the principle of direct rule, believing in the wisdom of dividing the opposition. The Portuguese destroyed the larger African political entities in order to integrate the smaller divisions into the colonial state. The Portuguese also were able to incorporate the traditional elite into their hierarchical system of colonial administration--a feat that solidified their rule. As elsewhere, the authority of these co-opted members of African society no longer derived from their traditional legitimacy, but rested on a diametrically opposed Portuguese conception of legality. The elite were no longer leaders of an African community, but representatives of a hierarchical colonial authority. Through collaboration, the chiefs generally gained in power, but they largely lost their earlier legitimacy and hence authority over their fellow men [von Albertini, 1982].

In the central highlands of Angola, cash crops and the spread of perennials soon led to the recognition of land as individual (private) property. Fallow land was no longer returned to the clan but held as family property, and so incipient individualism spread throughout Africa.

In conclusion, we see that the story of colonial administration of village political and economic life was similar--impose European institutional arrangements so as to: (1) encourage the cultivation of those crops of

interest to the colonial administration; (2) provide tax revenues to support that same administration; and (3) undermine indigenous political structures and processes further to strengthen the position of that colonial administration. These transformations essentially destroyed the village as an autonomous decision-making unit, which was, of course, the very purpose of those imposed institutional changes. Colonialism had both political and economic manifestations, both of which endure in the tangible form of degraded land and related natural resources.

IV. THE ARTFUL STATE

Natural resource degradation in the developing countries persists, in the main, for two related reasons: (1) unclear institutional arrangements (property rights);[5] and (2) a breakdown in the authority systems that give meaning to those very institutional arrangements. These two situations arise from the historical conditions detailed above. In the absence of an authority system, no convention or entitlement (structure of property rights) has any meaning if an individual or group of individuals chooses to contravene the institution.

The various news media have, of course, emphasized the serious problems of overgrazing and deforestation in the tropics. Often, it will be said that these destructive practices are the logical result of expanding populations. The policy response to this problem will be misdirected, however, if the cause is laid at the feet of population growth. By blaming population growth--and the subsequent land clearing for agriculture and scavenging for fuelwood by the masses--the public focus will be shifted away from the real cause of

natural resource destruction in the developing nations. That cause is ineffective governments with little interest in preserving the natural resources of their countries. While population growth is indeed a contributory cause of much deforestation and accelerated soil erosion, it is not the primary cause. Until we recognize that governments are largely to blame for the natural resource degradation now so prevalent in the tropics, the proper solutions will evade us.

Some governments may have a vested interest in perpetuating the belief that population growth is to blame for natural resource destruction. If the problem can be blamed on prolific peasants then it is far easier to avoid being held responsible. By allowing population growth to become a convenient scape-goat, governments are then free to posture and protest that they cannot control the rapacious masses. Blaming population growth also helps governments to attract development assistance programs to replant trees that they have been unwilling to protect in the first instance. These reforestation programs often employ large numbers of the poor and unemployed, thereby providing external funds for a potentially serious socioeconomic problem beyond the capacity of many governments to solve. The major problem of natural resource degradation in the developing countries can, quite reasonably, be found to rest with governments who claim to be so concerned.

In fairness it must be emphasized that colonialism had left its victims with very serious governance problems. Once colonialism gave way to national independence the imposed systems of authority at the village level were once again in need of modification and realignment with the new imperatives and interests of a national government. These disruptions destroyed, yet again, evolved relationships of power, influence, and authority. During these eras

of creation and modification of local-level systems of authority and control over daily life, populations were expanding rapidly, and technology was altering the way in which people used their natural environment. At the very time when the ability to control individual behavior at the village level was at its lowest, populations were expanding and the pressure on the natural resource base was accelerating. Degradation of natural resources was the predictable outcome. The colonial powers demanded passivity and obedience at the local level. These traits did not serve local administration and imagination in the new age.

There has been a lasting legacy to this process. First, agriculture at the village level is increasingly monetized. In West Africa the younger men in the village have had the opportunity to emigrate to urban or plantation jobs and earn considerably more income than if they remained in the village. Doing so weakens the traditional authority of the village head, and it also results in remittances flowing back into the village. If these men claim village land, as is their right, they will often assign its cultivation to others while they continue to work elsewhere. The rise of an absentee-landlord agriculture not only weakens traditional village bonds, but it means a different ratio of labor to land than for traditional agricultural practices in the village. Often such lands are farmed just enough to establish the continuing interest of the absent owner.

Secondly, there has been an increase in centralized political authority. The forestry code in French West Africa prevents individuals from cutting trees that they might be willing to plant and so there is scant incentive to plant trees. Finally there is the increasingly urbanized policy environment in which governments guarantee cheap food and fuel to acquire the political

acquiescence of urban residents. Low crop prices discourage increased food production, and low fuel prices do little to encourage investment in fuelwood plantings.

The new independent nation-states have shown little interest in revitalizing local-level systems of authority. As with previous rulers and colonial administrators, the governments of these nation-states do not relish the thought of local political forces that might challenge the legitimacy and authority of the national government. This means that natural resources have become the "property" of the national governments in acts of outright expropriation when viewed from the perspective of the residents of millions of villages. This expropriation is all the more damaging when national governments lack the rudiments of a natural resource management capability. These new governments are struggling with the problems of governance, economic development, self-sufficiency, and political stability. In this setting, we see natural resource destruction continuing, and even accelerating, with only a very indirect causal link to population growth. In essence, there are three dominant reasons why natural resource degradation continues even today: (1) the intentional policies of governments in need of foreign exchange; (2) well-intended but misspecified policies that were actually established with resource management and protection in mind; and (3) broad economic and agricultural sector policies that cause problems for land use and natural resources.

Intentional Degradation

In many developing countries it is the explicit policy of governments to exploit natural resources for export in order to increase earnings of foreign exchange. The foreign exchange earnings are then used to import manufactured items for industry, or to import consumer goods to satisfy the wants of an urban elite. The problem is one of a local demand for foreign exchange, the use of the natural resource sector to generate that foreign exchange, and the unwillingness of governments to confront the interests of those engaged in this pattern of resource destruction. In addition to the necessary imports that must be paid for with foreign exchange, much foreign assistance consists of loans that must be repaid in specific (hard) currencies.

The export structure of the developing countries is absolutely dominated by the natural resource sector either directly through minerals, timber, petroleum, or fish, or indirectly through the export of agricultural crops whose future production depends upon the wise use of land and water resources. As discussed above, the colonial history of most tropical countries can be understood as a major contributing factor in this particular pattern of resource use. Their early economic development was one of an imposed structure with the explicit intent being to provide the colonizing power with desired raw materials or agricultural products.

This process of intentional government destruction has its insidious side as well. In the Ivory Coast, commercial loggers have long engaged in wanton high-grading of timber stocks, leaving the lesser-valued timber for others to poach and burn so as to provide agricultural plots. As the better stocks have disappeared the value of timber marketings has fallen, putting yet more

pressure on the remaining stands so as to sustain export earnings. These practices have been legislated against, but only indifferently enforced. In fact, since independence the Government of the Ivory Coast has pursued an extremely destructive course of action toward its forests so as to earn foreign exchange and tax revenues. As a result:

> ...loggers continue to exploit the remaining forests, more or less uncontrolled, and farmers have followed roads developed for logging operations, establishing cocoa, coffee and food crops, with the widespread practice of 'slash and burn' farming. Such intrusions have also begun in the classified forest reserves and national parks. Government now estimates that this process transforms about 0.4 million ha of unspoiled high forest per year. Were these trends to continue, Ivory Coast could become a net importer of timber before the end of the century [World Bank, 1985, p. 2].

The World Bank report on this project continues by pointing to a persistent problem in renewable resource management--the problem of showing more interest in the symptoms of problems than in the root cause of those problems. Specifically, we are told that the continued degradation of forests poses scant ecological threat. However, it is reported that the subsequent invasion by land-hungry farmers imposes severe damage on the remaining forest cover causing increased soil erosion, reduced rainfall, and lower water tables. It is therefore reported that the "Government is becoming more conservation-minded in its approach to forestry in particular, and to natural resources in general [World Bank, 1985, p. 3]."

Unintended Degradation: The Myth of Management

The second class of resource degradation arises from government policies that may actually be formulated with resource protection in mind. As new

nation-states emerged following the demise of colonialism, governmental organizations were created reflecting those observed in more industrialized societies. Ministries of agriculture were created, often with a division of forestry or forest management. A few countries elevated forestry to the full status of a ministry. With these organizations in place it was not long until laws were passed, and administrative rules developed, that redefined an individual's rights with respect to the forest. In particular, a number of countries passed laws that prohibited the cutting of fuelwood without providing their residents with any alternative source of energy with which to cook their meals. This evolution of forest management by proclamation created perverse incentives at the local level where it suddenly became a necessity for survival to defy newly imposed rules from distant capitals.

We see similar patterns of resource destruction in sub-Saharan Africa where government policies divorce local users from the responsibility for conservation, while at the same time creating negative incentives that discourage villagers from improving resource-use practices [Thomson, 1977]. Forestry codes that outlaw the cutting of necessary fuelwood without accompanying programs of supply augmentation simply invite open defiance of [illegible]w and are--over the long run--counter-productive. This long-run problem is caused by an attitude of contempt for the national government, the knowledge that certain individuals have bribed their way out of difficulties, and the realization that the national government has no plan to deal with the very real resource shortages at the village level.

General Economic Development Policy

The final way in which destruction of natural resources arises is through economic policies directly related to agricultural (and general economic) development strategies. Specifically, these are national policies directed toward achieving self-sufficiency in certain food crops, and the export of certain cash crops that may be grown under plantation conditions. While not openly directed toward resource extraction, such policies hold important implications for natural resource degradation. For instance, chemical-intensive agricultural practices may destroy other important natural resources such as mangrove fisheries.

V. CONCLUSIONS

If natural resource degradation is to be stopped, several conditions must be met. First, national governments must understand the difference between natural resources of truly national significance, and those of only local significance. This difference is essential as a starting point in defining the legitimate and necessary scope of central government control over natural resources. There is something quite perverse in central governments declaring "ownership" of natural resources for which they lack the capacity to control. Ownership means nothing without the capacity to influence use and management. In declaring ownership, but in failing to manage the resource, there is a critical absence of an authority system which is the necessary condition for a resource management regime.

Second, once the determination is made concerning which resources are essentially local in nature, it will be possible to devolve control of certain natural resources down to the local level. Note that central governments must also create the means whereby the external legitimacy of local-level resource management regimes can be established. External legitimacy requires that boundaries and participants be known and respected. Interlopers must be firmly dealt with. Once these conditions are met, governments can offer technical assistance to the fledgling resource management regimes.

Third, the internal legitimacy of the new resource management regime must be secured with the aid of the central government. This aspect will entail managerial assistance in terms of creating the local authority system that will control use and access to the resource.

Fourth, for those natural resources of truly national import, the central government must focus its energies on developing a sustained management regime that prescribes acceptable behaviors, and that deals effectively--and honestly--with transgressions.

These conditions would reverse the decades-long practice in which most central governments have declared all natural resources to belong to the state. These pronouncements have, in a sense, been more concerned with who may not own the resources than they have been with who may own them. By declaring them "national property", local units--whether individuals or collectives--were precluded from the essential task of developing resource management regimes. Since the central government could not develop such regimes either, the resulting institutional vacuum meant that many natural resources were available to be plundered--and they were. The artful state must either lead, follow, or get out of the way.

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NOTES

1. Much of this is taken from a chapter of my most recent book Environment and Economy: Property Rights and Public Policy [1991].

2. The metaphor was defined by Hardin [1968], but earlier authors had written of so-called 'common property' problems in the fishery [Gordon, 1954; Scott, 1955].

3. The answer, not far to seek, is that sedentary peoples are always easier for governments to subjugate and control than are nomads. Nomads, by definition, have a rather independent cast of mind that governments find disconcerting and inconvenient.

4. See Polly Hill [1970, pp. 22ff].

5. I prefer to characterize this as an example of institutional dissonance in which actors at the village level are faced with several conflicting choice domains - each one predicated upon a different institutional structure pertinent to the village.

CHANGING PATTERNS OF CPR USAGE IN UTTARA KANNADA DISTRICT IN SOUTHERN INDIA

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In an agrarian society the surplus generated from natural resources of the countryside by the peasantry is siphoned of by the elite. The extent of such appropriation depends on the coercive ability of the elite vis-a-vis the peasantry. The fate of common property resources under such pressure depends on the nature of resources that the elite is interested in siphoning off. If the resources to be siphoned off are primarily the produce of agriculture, then CPR's like forest or irrigation tanks may be permitted to remain under whatever management regimes the local communities set up. On the other hand, if the resources to be siphoned off come from CPR's, their control may be taken over by the elite through the machinery of the state. By and large, the state apparatus is less likely to be concerned with long term sustainability of resource use than the local communities resulting in a greater risk of their exhaustive use. We document such a process based on a case study from the Uttara Kannada district of Karnataka state in south India. This hill

district has only around 12% of the land under cultivation, the rest being under forest cover. In pre-British times the elite was primarily interested in siphoning off the surplus of agricultural production; this was supported by the construction of small-scale irrigation tanks. The agriculture in this heavy rainfall tract with very poor leached soils greatly depends on biomass inputs from the forest vegetation. In the pre-British period therefore the local communities were permitted to retain control over irrigation tanks and forests abutting cultivation. The local communities in turn seem to have managed these CPR's under community regulation in a reasonably sustainable fashion. During the British regime the surplus to be siphoned off was not only from agricultural produce, but also forest produce, especially timber. Forests were therefore taken away from community control and utilized in an exhaustive fashion. The irrigation tanks supporting agricultural production and enhancing the potential for siphoning off of a surplus production remained under good community management. Following independence and rapid industrialization, the elite became far less concerned with siphoning off of agricultural production. The emphasis now came to be placed on generating surplus through activities like generation of commercial energy sources, mining, construction and industrial activities. The state apparatus therefore seized control of the irrigation tanks, leading to their non-sustainable use. At the same time, exhaustive use of forest resources under state control gathered further momentum. All through this one special resource element, namely estuarine lands under brackish

water paddy cultivation and prawn fishing has remained under effective community management because the physical nature of this resource renders individual management as also state take-over highly inefficient.

B. PRE - COLONIAL PERIOD

The Uttara Kannada district as elsewhere in pre-colonial India was a land of well-knit local communities comprising strong, self-governing endogamous caste groups and rather weak central authorities. The ownership of the land was vested with the king and only rights of cultivation were granted to the farmers. Thus, land was not a commodity for sale. In this society where human and animal muscle power formed the major energy resource, per capita resource consumption was modest, not only of poor but of elite.

The revenue collected from the agricultural lands was a major source of income for the rulers .Land tax was a certain fixed proportion of the produce (like 1/8 th of produce) and irrigated lands meant higher and more stable surplus. Hence the rulers built tanks and also encouraged their more powerful subjects like local chieftains to do so. The agricultural lands were not systematically measured and recorded. Often only the cultivators could identify the boundaries. Lack of proper transport and communication with the centers of power in a densely forested area limited the coercive power of the elite.

The user groups of farmers constituted a water panchayat which took all the decisions regarding irrigation tanks. The management comprised of designation of enjoyment rights, desilting of the pond, maintenance of waste weir and irrigation feeder channels, decision regarding the cropping pattern, protection of the tank foreshore and repair of the tank bund. For the day to day maintenance and distribution of water a local functionary called 'Neeruganti' was appointed and his decisions were accepted by all. For the services he rendered he was entitled to a share in the produce from the irrigated lands. Labour intensive works like desilting, repair of bund, waste weir were done by voluntary labour contributed by the users. The village communities with a strong caste based social control ensured the effective functioning of the organisation.

In the coastal estuarine lands there is a long tradition of cultivation of salt water resistant paddy during rainy season in the brackish waters of the river. This cultivation was made possible by building an earthen embankment (kattu) in the low tide zone of the estuary to regulate the inflow and outflow of water. Such construction and its further strengthening in each summer using the loppings of adjacent dense mangrove vegetation was done by collective labour from all the farmers in the patch. Such community activities were coordinated by a leader chosen by the farmers, known as the 'Patagar'. He unlike the 'Neeruganti 'in case of irrigation tanks enjoyed absolute decision making powers and could levy fine and issue social sanctions against the erring members. He was given a share

in the produce for the services performed. In summer these lands with dense mangroves in the fringe were open to fishing by the fishermen and yielded an excellent catch of fish and prawn.

Such an highly evolved system of community management which included voluntary participation in various activities and synchronization of all agriculture activities from land preparation to harvest, was possible because (a) Rigid social control over non-cooperators in the form of fines and social sanctions (b)If a farmer did not synchronize the agricultural operations, land preparation and sowing with others he could not cultivate as all the lands are simultaneously inundated with water .

The demand of the elite on the forests was light and was confined to only timber for ship building and trade in spices. The district in which even today only 12.5 % of the area is available for cultivation; there existed heavy reliance on forests for livelihood. It is possible that the entire forest away from the neighbourhood of villages was treated as an open access common property resource by the village communities. Shifting cultivation and hunting gathering were freely practiced and were not subject to any taxation. People collected valuable spices like pepper, nutmeg, cinnamon from forests along with a whole range of minor forest produce like Garcinia, canes,other structural material and fruits. Wild meat formed an important part of the diet. In the heavy rainfall regions the agriculture was not possible without use of green leaf as mulch and manure. Cow dung was a valuable manure and for maintenance of grazing

lands and protection from wild animals to crops there was extensive savannization around settlements.

The village communities with considerable autonomy had evolved various mechanisms to regulate harvests from forests in the immediate vicinity of the settlements. A variety of species were used for subsistence but harvests were limited in quantity. Exploitation was regulated through religious beliefs(as in sacred groves or kans) or through customary practices. These included quantitative quotas for biomass removal,closed hunting seasons,protected life history stages,protection of individual species and protection of entire communities like patches of sacred kans. Even today hundreds of such kans are in existence which are always associated with a deity and here no disturbance including collection of litter was permitted.

C. COLONIAL PERIOD.

British occupied U.K. after the defeat of Tippu Sultan in 1799.As a colonial power their main interest was to generate as much revenue from lands as possible and also to take over the till then open access forests and commercially exploit and export timber. With the higher coercive power they enjoyed relative to the peasantry they could squeeze out a larger proportion of the surplus. As regarding the land taxes, during Tippu Sultan's regime the taxes levied were so high that nearly 1/3 rd of the population had deserted their lands. British saw no reason to decrease these rates and in fact raised them further by

15-20% by other levies. This resulted in heavy rates of taxation especially so for irrigated lands. Thus, in 1870's the tax was Rs.15 per acre of garden land while more than a century later with enormous inflation it is still Rs 17.

The British regime radically changed the rural society and economy. The agricultural lands were systematically surveyed and identified and the tax assessment made and ownership titles given. They further organised yearly tax collections as per this basis payable by the individual land holders as opposed to collective payment by the village community as a whole made earlier. This brought all lands under tax net and increased the efficiency of collection. Insistence on payment of taxes by cash rather than share of produce was difficult for the peasantry used to the traditional barter economy. Hence , the control of the lands went into the hands of the trader/money lender/literate communities who formed the land lords with ownership on large tracts of land. The peasantry became sharecroppers. With the resource productivity remaining unchanged and landlord and British each taking their shares the condition of the peasantry was considerably depressed..

As good management of tanks was very much in the interests of British they did not interfere with the existing system; but took no initiative to construct new ones. A similar obtained in the estuarine lands, with the ownership of land passing it the hands of land-lords with the share of the peasants being reduced. However, the traditional management system continued as before.

With a major commercial interest in timber (especially teak and hard woods)of the rich forests of Western Ghats; they effected drastic changes by taking over all non-assessed lands as state forests. Shifting cultivation was banned in 1870's and with this thousands of hectares of fallow and recouping lands were taken over. Community managed forests and even the evergreen kans were taken over as Reserve Forests. The traditional rights and privileges of people like collection of spices, minor forest produce,hunting,grazing and lopping for organic manure were withdrawn from these reserved forests. Thus the ownership of more than 80% of the geographical area of Uttara Kannada came to be vested with the British Forest Department. These became supply bases of teak,other hardwoods and certain M.F.P's .

These measures led to wide-spread discontent and met with lot of resistance from the people who in general depended heavily on the forests for their biomass needs as well as food. Hence,the state conceded their privileges grudgingly in in the degraded forests and denuded areas around their habitation which were christened as Minor forests. These areas which were already in a denuded condition were to be treated as open access common property resources by village communities which did not have any power to restrict access or manage them. With heavy pressures on biomass and no management the already poor minor forests were overexploited and totally depleted.

Such degraded patches of Minor forest with no commercial value were considered as a burden on the Forest department. Hence, it was proposed to disforest certain Minor forest patches and hand them over to the community management of the villagers. Such patches were comparatively bare of trees although there was abundant bushy growth yielding leaf manure that had no commercial value to the British. The available small yield of M F P was more than counterbalanced by the trouble of looking after them.

As a result, with an amendment in the Bombay forest act in early 1930 village forest panchayats were formed in 11 villages comprising of total area of 1814.5 ha. These consisted of elected members of all communities and had rights to regulate access to and harvest of produce. The Panchayats managed the patches assigned to them in a sustainable way and they retained better tree cover then the minor forests. However the people of the village still indulged in heavy extraction of forest produce from other Minor forests.

In the interior hilly regions individual farmers were given privileges for lopping trees for organic manure from specific plots known as 'Soppina bettas'. These patches being nearer to habitation were already in a semi-degraded state. Additional tax was levied on people enjoining this privilege.

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D. POST INDEPENDENCE PERIOD

With the coming of democratically elected popular government after independence, and beginnings of rapid industrialisation, the elite now came to be made up of the politician -bureaucracy- business combine.This elite has reduced the high rates of taxation on private agricultural lands levied by the British. The land tax could not continue to be a major source of revenue because high rates would adversely affect the large farmer vote-bank of the politicians. Furthermore, industrial development brought in new resources generating surplus.Notable amongst them were the bamboos and softer woods from forests, hydroelectric power, minerals, prawn and fish.

While being sensitive regarding reduction in land taxes in private property the elite saw no reason to give back to the people nay control over forest resources. The Karnataka Forest Department very much continued the British policies of keeping people away from the reserve forests. There were however large scale releases of forest lands for various purposes like hydro- electricity, rehabilitation, and agriculture to the tune of 10% of all land.

As the forest area and stock dwindled, the forest department activities included:

(1) Auctioning the rights of collection of M F P to contractors while ignoring the needs of locals

(2) Supply of wood at highly concessional rates to plywood, paper and polyfibre industries. (3)Opening up of the sacred

groves, now viewed as stands of overmature timber to commercial exploitation.

The village Forest Panchayats which since 1930's had protected and managed several patches of forest with a good measure of success were derecognised in 1976. Invariably, these were overexploited by commercial interests. However, two of these panchayats, namely Marur-Kallabbe and Halkar resisted the take-over order and obtained a stay from High court.

The forest panchayat at Halakar functioning even today is a good example of community management. However ,now this is under pressure from grazing and theft by outsiders. The forest department has shown no inclination to help out the forest panchayat in spite of many requests.

After Independence, the once strong system of community management of irrigation tanks was threatened due to:

1. Rigid social control in the village communities which played a key role in such management was eroded. Opening up of the village community to outside world, better communication and educational facilities and finally economic prosperity of the weaker sections following the land reforms have promoted more individual centered attitude in the community.

2. Availability of new and alternative irrigation sources like wells fitted with pumpsets.

3. Increase in the silting of tank s with large areas in the catchment deforested or encroached for cultivation and an

decreased incentive for desilting as chemical fertilizers were an easier alternative to pond silt.

The already strained community management was put to an end when the Minor Irrigation Dept. took over the management of the tanks with the justification of need to provide a better management. Now there are many tanks without any management system and here no maintenance of has taken place for years. The water used in unregulated and wasteful way has created hardship for all and more so for the tailenders. In few of the tanks where some form of community management exists, the local people are unsure of its locus standi.

The availability of new technology for canning marine products and possibility of earning lot of Foreign exchange by export to Japan, created interest in the prawns as a new resource to be exploited by the elite. To enable the culture of prawns permanent embankments had to replace the kattus in the estuarine lands and in summer water had to be impounded for growth of prawn. The contractor lobby saw in this a vast scope of construction and the canning industry, availability of prized raw material. Both these sections lobbied heavily with govt. for implementation of the kharland bund scheme since 1976.The local resistance to the scheme was ignored. It came mainly from the fishermen who would lose their free access to the excellent fishing grounds of the estuarine lands in summer. Farmers were also apprehensive of this new development which would dissolve their traditional land boundaries and merge them into a single

large patch.

With the construction of permanent embankments, the traditional community management was threatened as there was no need for collective labour now and many previously separate patches of estuarine lands had merged into a single patch. However,a new form of community management has emerged as being crucial in auctioning of the fishing rights each year. As the whole patch is an indivisible resource in this respect and the rights can only be auctioned collectively and this brings a very high income of 8000=00 Rs per Ha with no effort on the part of the farmer.

This whole process has several undesirable consequences like :

1. Decrease in the paddy yields in rainy season due to excess salinity.
2. Salt water incursion onto the mainland.
3. Non availability of grass growth in summer as fodder.
3. Destruction of excellent Mangrove swamps (maintained for building kattu) resulting in loss of organic matter source and important habitat for birds.
4. Loss of fishing grounds has forced Fishermen to migrate in search of employment.

Thus, following Independence the new elite through the organ of bureaucracy has extended its control over more and more of the C P R 's. However, of late, there have been some attempts by K F D to green the barren Minor forests and hand it

over to village communities. This is being done mainly to take the pressure off the Reserve forests. Such attempts of community management have met little success so far. People feel alienated from this whole exercise as the M F has been planted with monoculture of Acacia . and in the whole process they were never consulted. Over the last two years, however, there are fresh attempts at ensuring people's participation and also giving them some autonomy in management. This perhaps reflects a slight shift in balance of power in favour of the peasantry that is becoming increasingly literate and politically sophisticated.

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Cultural Constructions of the Natural Environment in and beyond Rajasthan

PRELIMINARY DRAFT of **THE FIRST HALF**
of a contribution to the conference on
Common Property, Collective Action and Ecology
Center for Ecological Sciences, Indian Institute of Science
Bangalore, August 19-21, 1991

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Preface

Toward the beginning of Shashi Tharoor's The Great Indian Novel, the narrator, addressing his scribe Ganesh, glories in the births of his progeny Dhritarashtra, Pandu and Vidur. (For anyone who hasn't read the novel, it involves a time collapse of the Mahabharata's epic era with the independence movement.) Here is a fragment of his rhapsodic prose:

> "Their births seemed a signal for the state's resurgence. Prosperity bloomed around the palace, Ganapathi: the harvests produced nothing short of bumper crops, the wheat gave off the scent of jasmine, and the women laughed as they worked in the fields. There were no droughts, Ganapathi, no floods either; the rains came, at just the right times, when the farmers had sowed their seeds and said their prayers, and never for longer than they were welcome. Fruit ripened in the sunshine, flowers blossomed in the gentle breeze; the birds chirped gaily as they built their nests in the shade, and aimed their droppings only at passing Englishwomen. The very cows produced a milk no doodhwala could bear to water (Tharoor 1989: 39-40).

This passage overflows with images of an environment that participates in human affairs. The state's resurgence is metonymous with the land's fertility. Climatic conditions linked to

ritual action harmonize with the royal family's flowering.[1] Perhaps most striking of all, however, are the political and moral dimensions of this almost conscious pastoral landscape. Insolent birds perpetrate political resistance; honesty flows from the cow's teat to the milkman's conscience.

It was sheer chance that I was reading Tharoor's novel as I prepared this paper on the cultural construction of the natural environment. But his passage leaped out at me as a poetic encapsulation of at least some of the points I wished my paper to make. Tharoor writes tongue-in-cheek, of course. Nonetheless, his writing evokes certain aspects of human relationships with the environment that are variously evident in other South Asian texts and contexts.

Frances Zimmermann (1980; 1987), for example, finds in Ayurvedic medical treatises a principle of "appropriateness" (sātmya) that locates the desiderata of health in the compatibility of person and diet with seasonal, geographical, botanical surroundings. E.V. Daniel (1984) chronicles how one South Indian caste associates their moral character with qualities of the soil they cultivate and the food they ingest that is grown on it. A.R. Vasavi (1991) reports on Bijapur farmers who use metaphors from modern agriculture to describe their own deteriorating physical and existential conditions. Both Vaudeville (1986) and Wadley (1983) in their respective studies of the Hindi literary genre called Bārahmāsā or "songs of the twelve months" demonstrate the ways that human states of mind and emotion as well as personal and interpersonal harmonies are linked to seasonal cycles.

In pointing to a South Asian tendency -- noted by South Asian as well as Western anthropologists -- to posit continuities between human beings and their non-human surroundings I wish in no way

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[1]Many discussions of South Asian kingship and authority note this kind of substantiated identity between royalty and geophysical and agricultural well-being. See, for example, Ludden who writes: "Powerful people would therefore seem to have been thought both cause and effect of agricultural prosperity: they were protectors, arbiters, ritualists, and also embodiments of wealth" (1984:59).

to perpetrate the kind of stereotyping (elegantly deplored by Guha [1989], among others) that insidiously portrays any non-Western sense of continuity with nature as characterized by passivity, innocence, fatalism and/or victimhood. The implications of Tharoor's passage thoroughly discount such stereotyping.[2]

This paper is an attempt to explore what the environment means to people, and how that affects the ways that people use and treat the environment. Equally, it concerns how uses of the environment affect what it means to people. For the most part, the people I talk about here are rural Rajasthanis from Ajmer District. The environment they live in is, I assure you, far from paradisiacally compliant to their moods. Yet expressive modes in Rajasthani culture assume some of the same moral, political, and emotional continuities to exist between people and their surroundings that Tharoor's mythologized fiction poses. Although I write these pages as a cultural anthropologist, convinced that people use and treat the environment according to cultural precepts as well as ecological and economic constraints, I attempt to avoid a falsely unitary view of culture as a monolithic, hegemonic value system. Rather, I assume that different people differently define and evaluate different aspects of an environment to which they may be related in different ways.

Let me initially set before you a couple of factors that have shaped this preliminary draft of my contribution to the "Common Property" conference.

1) When he called to invite me to participate, Ron Herring blithely suggested that I produce a "phenomenology of nature." Now I am an ethnographer and a folklorist and if I write in a phenomenological fashion it is largely unwittingly. Moreover, to use "nature" as a cross-cultural category, is highly problematic (a

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[2]There is certainly no dearth of English literature where nature is fully implicated in earthly beings' moral conditions. Think only of the difference between the pestilential terrain that surrounds the tower of the dark lord in Tolkein's Lord of the Rings trilogy and the golden woods of Lothlorien where the wise Elves dwell. However, any meaningful comparison is well beyond my scope here.

problem I arbitrarily defer to the concluding portion of this presentation) Despite these genuine qualms, I have taken Ron's request as a kind of charter for the relatively unanalytic character of this paper. Phenomenology in one its looser senses, attractive to anthropologists, becomes almost synonymous with "thick description." Another affinity between phenomenology and ethnography is the image of the phenomenologist as "perpetual beginner" -- a stance well suited to the fieldwork situation which often involves living and learning as a child in an adult body. Yet I remain acutely aware that the process of constructing this paper has been one of selecting and arranging -- a process that is, of course, an insidiously analytic one.

2) "Cultural constructions of the environment in Rajasthan" is, as some of you know, the title of a fieldwork proposal I have put in for 92-93. In that proposal I suggest that an intensive study of agricultural and pastoral rituals could be very revealing about the ways that an environment is imbued with meanings by farmers and herders. I propose that these meanings are inevitably linked with social organization and economic production, as well as with cultural or religious values -- and further that economic and symbolic domains of knowledge and action are mutually constructed. What you have here, then, is a prelude to research yet undone; I shall elaborate on the ethnographic and conceptual backgrounds that generated my proposal, but obviously I cannot anticipate its results.

My paper has four parts:

I begin with three brief memories of my own experiences about a decade ago now (79-81) when I lived in rural India. Distilled, refined, and retrospectively reinterpreted, each functions as a rather transparent parable about one obvious aspect of the way human beings relate to the environment that sustains them -- a "nature already appropriated for human use" -- to borrow Herring's phrase (1991:2). In a word, all three memories have to do with eating, and I, as a foreigner, play a part as participant in and commentator on these "Varieties of consumption." One main point of Part 1 is that eating itself is a highly polyvalent act. These

memories also reveal the liabilities of the cultural outsider -- in danger of imagining a "simpler" world even as complex and unperceived trails of meaning dog her halting steps within it

Oral traditions as aesthetic compositions and as cultural performances, provide substantial articulations of an indigenous perspective. Yet here too I have acted -- not only as listener, but selector, translator, interpreter. In Part 2, "Beyond consumption," I draw on Rajasthani folklore to explore some recurrent environmental imagery found in these cultural performances. To facilitate presenting these materials, I have grouped my examples around two thematic patterns: 1) As in Tharoor, nature both responds to human identities and states of mind and creates them 2) Different parts of nature are often categorized and bounded; folklore seems particularly concerned with category confusions and boundary transgressions. To phrase it differently, tales consider how uncultivated, uninhabited, untamed areas are related to cultivated, populated, tame ones. Running through both sets of examples is a third motif, perhaps most directly relevant to the commons issue: nature as portrayed in folklore offers sometimes unlimited abundance, sometimes scarcity and depletion. Human politics and human greed and human acts of worship are among the factors that may influence these conditions

In the third part, "Community, ritual, reproduction and production," I build on concepts that emerge in Parts 1 and 2: nature as eaten, nature as conscious and responsive, nature as parcelled and categorized. However, the stress is on ways that coordinated community efforts address the control of natural phenomena: specifically rainfall and animal health. I very briefly describe two ritual events that take place annually in the village of Ghatiyali -- Cow Worship (gāy pūjā) and Village Outside Cooking (gāṅv bāhar rasoī). I have written of these events elsewhere in describing Ghatiyali's religion; here I rethink them as vivid examples of just that ritualized cooperation and moral unity that Wade found missing in the South Indian communities he studied (1988). Here the concept of "ritual technology" -- developed by Lansing (1991) following Condominas (1986) -- as well as S. Marglin's

ideas about work (1990) and Appadurai's discussions of agricultural knowledge (1989; 1990) are helpful in understanding a complex of human activity organized and constrained by more than expediency or hunger. Yet on the day of Village Outside Cooking, consumption once again assumes thematic priority.

Part 4 contains no concrete conclusions but suggests further directions where I believe there is room for extensive and fruitful research concerning South Asian understandings of the environment -- understandings at once conceptual and pragmatic. Here I return to the nature of nature and the specific parameters that concept may have for India. I also briefly allude to a debate of twenty years duration in Western environmental ethics on whether Western religious traditions are partially responsible for the currently perceived environmental crisis. Certainly diverging cultures and histories imply diverging solutions to environmental dilemmas -- including commons dilemmas. Yet perceptions of crisis -- including commons depletion -- as global may eventually demand thinking beyond cultural parameters. Neither cultural determinism nor ecological determinism provides perfect answers. So it may be just as well that you think of what follows as phenomenology.

I. Varieties of consumption

A Walk with Paṭwārījī

In the autumn of 1979 I was an absolute beginner at village life. By nature a passive person, I adjusted to fieldwork by surrendering to the wills of others. For several months I allowed myself to be led here and there by numerous different people for reasons I was usually unable fully to fathom. This was how I became oriented to the place where I was to live and work for the next eighteen months. Although I take no credit for the discovery of lapsed initiative as method, I probably could not have designed a better way to assimilate certain aspects of rural Indian realities.

One day during this period I was invited to "wander in the fields" (khet meṅ ghūmnā) by a person I knew only as Paṭwārījī. Even today I can't recall his real name, though it is no doubt

retrievable from my fieldnotes Paṭwārījī was a plump Jain with glossy skin and hair, a jovial voice and an ebullient character. At the time, I did not know that Paṭwārījī's appellation implied a bureaucratic function. I knew Paṭwārījī only as a regular and dedicated participant in the activities surrounding the worship of a local divinity named Dev Narayanji whose shrine, which drew pilgrims from afar, was one of the reasons I had decided to conduct research on Hindu pilgrimage in the village of Ghatiyali (Gold 1988). The shrine was located in the fields, and it was from that place that, one Saturday in September, Paṭwārījī invited me to wander with him.

As Paṭwārī strode purposefully along the edges and across the boundaries of cultivated plots of land, with me in tow, toiling farmers dropped their work at hand to greet us cordially. Gardeners presented the beaming Paṭwārī with a few choice vegetables from their plots for his wife to cook. Some picked enormous cucumbers, the color and taste of melons, which they deftly sliced on the spot with iron sickles that were meant for heavier tasks, and proffered to us. This was my first encounter with agricultural produce at its point of origin, and I was thrilled by the exquisite taste of the earth's bounty and the apparent selfless generosity of rural folk.

Over the ensuing months I came to an awareness of who Paṭwārī was in the "moral economy" of Ghatiyali - and learned that few farmers regarded him, the record-keeper and revenue assessor assigned to our village, with unmitigated benevolence. That they had "calculative" aims in mind when they proffered their gifts of food became clear. Retrospectively I imagined what subtle negotiations underlay their generosity. I also came to appreciate the resentment my own presence must have caused, for as a foreigner I evoked a different gift-giving paradigm.

During the first phase of my residence in the village I was defined as a guest and under the equation guests are gods I became for a few weeks a divine recipient, to be treated with overwhelming generosity. I was eventually to learn that just as with gods, certain material blessings might be hoped for in return.

The hopeful logic that underlay villagers' eagerness to offer me food may have been structurally homologous, but tactically it differed sharply from the "calculative" logic of the offerings made to Paṭwārījī. By taking on the role of guide to a foreign visitor, Paṭwārī indeed masked his own role as predator and he unabashedly enjoyed the false position in which he placed both me and the farmers who were forced to feed us both.[3]

Paṭwārī's relatively high caste combined with his manipulative political power allowed him to play this game to perfection. Different results ensued, just a few months later, when two enterprising barber boys took my ten-year-old son for a stroll in the fields. Themselves emboldened by the company of a foreigner -- the boys made free with the carrots in a gardener's well tended patch. This was a thrill for my city-bred child, just as the cucumbers had been for me, but all three of the boys were rousted and scolded. I too was scolded: my son was the cause of the barber kids' bad behavior in perpetrating these unwonted depredations. He would soon be returning to his boarding school faraway in the mountains, but the barber boys had to live here, and their families could ill-afford to provoke the enmity of the landed Gardener's caste who were among their patrons.

When my assistant Bhoju was a child he pilfered wheat from his family granary to trade for candy at the baniya's. He secreted his stores in his pants, and when his grandmother grew suspicious one dreadful day, she commanded him to drop his pants (a very great humiliation even for a little boy). The lecture she gave him he remembers today as a major moral lesson of his life: it was an absolute wrong to make free with the family's grain stores.

The cultivated fruits of the earth are sold for a price or given with a motive; the land they grow on and the labor that produces them endows them with value, weighted by ownership. Agricultural produce is counted, traded, and eaten -- even in times

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[3]See Smith on Vedic cosmogonies and the social hierarchies they generate. Smith shows how "eating up" of the lower by the higher is a motif of these cosmogonies (1989: 249).

of plenty -- with knowledge of the labor that went into producing it, of the owned property from which it sprang, and of the rank order generated and sustained by its manipulation. The most common term of address to a superior in the folklore of rural Rajasthan is anadātā or "Grain-Giver."

Berry picking and the berry wilderness

In the translation I have recently completed of an oral epic from Rajasthani Nath yogi traditions (about which you will hear more),[4] there is a moment when desperado lady magicians have turned fourteen hundred yogis into donkeys and driven them into the jungle. Although this episode is set in Bengal, as so often happens in oral performances the Rajasthani bard locates the action, as he improvises his prose explanation, in the immediate surrounding environment, thus engaging his listeners and drawing them into the tale. The chief disciple of the ill-fated donkey-yogis -- who in deference perhaps to his superior rank has been transformed into a camel -- reports on what has happened in a prayer to this guru:

"Those lady-magician sluts have turned our fourteen hundred disciples into donkeys and driven them into the jungle; they are braying in the Berry-wilderness." This was recorded in 1981. My translation assistant told me in 1990 that bor kā mangarā[5] -- which I translate as berry-wilderness -- referred to an area just outside of our village, Ghatiyali, where berries once were plentiful, but are no longer. Now I have my own special memories of the berry-wilderness dating from 1980, and I realize a decade later

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[4]This book, Gold 1992, is not yet in page proofs; here and throughout this paper when I refer to it I give no page numbers.

[5]"Mangarā" does not appear in the Rajasthani Sabd Kos (Lalas 1962-1978). I asked my collaborator, Bhoju Gujar, to distinguish between three terms referring to areas beyond human settlements that appeared to be used interchangeably in the Nath epics. He defined mangarā as "that jungle where there is a lot of grass and shrubbery"; jungal as "a deserted place, or forest"; and kānkar as "that uncultivated field (maidān) where wild grasses grow." Bhoju wrote, "among these three's meaning and usage there is no special difference."

that they are memories of common property. Bor, the berries in question, are as small as blueberries but 80 percent pit. These tiny, chewy fruits with wrinkled red skins are gathered by young and old, male and female, big and small castes, and eaten and gifted in a spirit of sharing that is quite different from the spirit in which the fat cucumbers were shared with the plump tax assessor and the foreigner.

Bor taste of sunshine and dust, and for me their flavor epitomized the Rajasthani environment. But if I think of bor season, I recall more than flavor. Bor were equalizers -- media for a generosity that didn't depend on land ownership or wages. During bor season, small, scruffy, boys like the two barber kids, happy to have something to give, would come to my room at twilight with grubby hand- and pocket-fuls of berries, and present them to me with serious pleasure. They wanted to hang around and watch me eat and enjoy their gifts. I'm not saying that these children weren't some day going to ask me for a page of my Time or India Today to cover their schoolbooks, or a piece of scotch tape to mend a torn page. But they didn't come with their handfuls of bor in the crass spirit of lenā-denā -- a spirit that I recognized after the fact pervaded and perverted my walk with Paṭwārījī. These fruits of common property were a brief source of economic independence for the children. As what Wade calls "common pool resources," they were potentially depletable, but I heard no hint in 1980 that there were not enough berries to go around for all those who had the time to give to picking.

Who took the time to pick bor? For the most part it was not the busy farmers, but children, and women.[6] A berry-picking expedition was a clearly relished opportunity to leave the courtyard for the cloistered Rajput matrons with whom I lived in 79-81. They pressed me to accompany them, and this pleasant excursion we made together was the only occasion I am able to recall from my entire period of residence in their household (over

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[6]See Appadurai 1991 on the importance of "dietary improvisation" for women in rural Maharashtra.

sixteen months) when they left their courtyard for any reason other than a ritual event or a prearranged family visit.

Bor are probably not a substantial part of the Rajasthani diet; it is hard for me to believe their nutritional value is very great, though perhaps there is some Vitamin C in them. It would be difficult indeed to fill one's stomach even on buckets of bor (which may be why the defeated yogis are consigned to graze, dying of hunger, in the berry-wilderness). Yet if the berry-wilderness is now without berries, then the quality of life in Ghatiyali is diminished. Why this has happened remains to be explored.[7]

Eating the wind

Now and then, when I had had my fill of work and talk and close company, I would walk into the countryside surrounding the village with no aim in mind but to be in an open, outdoor setting. I found it difficult at these times to answer the question that was always called to someone walking from one place to another in the village. "Where are you going?" -- a question which required a purpose-revealing answer. "Going to wander" (as memory I disclosed) means going for a walk, but it also connotes enjoyable pastimes and sightseeing such as green fields and cucumber-eating might provide. The uncultivated outskirts of our village -- where I headed on my walks -- rocky dry terrain where only goats and sheep found pleasure -- were not understood as suitable places for ghūmnā. As was so often the case, people observant of my perplexity supplied me with the appropriate answer by phrasing it as another, rhetorically suggestive question: "Are you going to eat the wind [havā khānā]?"

As I was trying to think about human relationships with nature in Rajasthan, this phrase came back to me. Clearly the people who handed it to me understood just why I wanted to walk where there were no houses and fewer people.[8] In my own

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[7]See Jodha 1985 on the ongoing depletion of CPR in Rajasthan.
[8]For a remarkable description of how Banaras residents define and experience the pleasures of excursions to open space see Kumar 1986.

language I would have said, "I'm going to get some fresh air." Air, like lighthouses and weather reports is a presumably undepletable resource (Wade 1988). Yet it too, in the idiom of "eating the wind," is consumed.

Eating itself is, as you all know, an act laden with meaning in India as elsewhere.[9] A very cursory glance at the semantic domain of the ubiquitous transitive khānā leads in some interesting directions. To offer a very few examples from common local usage in Ghatiyali:

Marriage rituals culminating in circumambulations of a sacred fire were locally referred to as "eating rounds" -- understood to transform substantially those who "ate." Someone who suffered a blow was said to have "eaten it." Someone who got lost was said to have "eaten circles" or "dizziness." A man who looked lasciviously at a woman was said to be "eating with his eyes." The act of consumption not only implies predation and an inevitably violent superiority. It also means identity-transforming incorporation that can easily include suffering.

Consumption even in its most positive senses is often severely constrained, morally limited, by ideals of self-restraint in Hindu traditions -- fasting, eating only what is appropriate and so forth. Greed, although acknowledged as part of the human psychic make-up, is disapproved by the gods (Gold 1988:7-8). Excessive consumption is ill-doing -- a theory that might just have auspicious implications for ecology.[10] Could excess be an issue in the consumption of such a subtle and undepletable commodity as wind? It may be so, I would suggest, just because going out to get fresh air is a time luxury affordable only by the rich or unemployed -- two morally suspect groups.

In reconstructing these memories I have recalled some ways that, as a foreign observer, I learned how depletable and

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[9]For some rich explorations of food and consumption in India see Khare and Rao, eds. 1986; Toomey 1990.

[10]I have not even touched on the manifold links between eating and sex; see Wadley 1991 for a full exposition of these areas of consumption as conceptually interwoven in a U.P. village.

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undepletable, privately owned and commonly pooled aspects of nature are used and conceptualized in one Indian village. In one way or another, all are consumed, but this is not all there is to human relationships with the nonhuman environment. In concluding this section I stress the polyvalency and contextually determined evaluation of varieties of consumption. Interposed in each memory between eater and eaten is a web of symbolic and cosmological values, social relationships and economic powers.

Landscapes and their products are evaluated and experienced according to human ownership as well as according to their own qualities. The very attractiveness of green fields and tasty, ripe produce makes them liable to exploitation. Despite the evident profitability of his enterprise, only one person in our village in 1980 had the gumption to grow papayas, for he was the only one willing to sleep in his garden and prevent the theft of these desirable fruits (whose enjoyment was then limited to the schoolteachers and the hereditary landlord with ready cash to purchase them). Bor are a far cry from papayas in succulence, but the berry-wilderness had its own sweet charms (that I believe included a palpable democratic ambiance -- although that is an outsider's formulation). Still further from a garden of papayas was the rocky goat-grazing territory where there is literally nothing to eat but the wind.

2. Beyond consumption

As we have seen, consumption itself has political, moral and psychological implications. In proposing to go beyond consumption, I shift to images of an environment less directly incorporated than cucumbers, berries or air. I find these images in Rajasthani folklore, and use them to explore themes of mutuality and identity between people or gods and their natural surroundings; of penetrated boundaries, demographic flux, and the appropriate use of territory; and of bounty and limits to growth.

Mutuality and identity

Consider these lines from a Song of Dev Narayan, recorded at an all-night session at an outdoor shrine attended in part by women seeking the blessing of progeny.

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I look from afar, the ocean is filled, Oh Uda Swami
filled Oh Uda Swami
When I come near the ocean dries up

Stay away from my ocean, you barren woman
Stay back, you barren woman
Because of your shadow the ocean dries up

The implication is that human inauspiciousness, of which the barren woman is an unfortunately vivid example in the minds of Rajasthanis, receives an immediate response from the natural world. Just as she is empty and useless, the ocean (and successively in the song other elements and beings) becomes so. The entire song consists of these juxtaposed dialogues in which the unhappy woman implores the deity and then projects her sense of her own inauspicious lack into the angry voices of natural phenomena.

Here is another example, less troubling from the feminist perspective. It is taken from a women's worship story of Dasa Mata or the Mother of Well-Being. Because King Nal has offended Dasa Mata, all their good fortune is destroyed overnight and he and his queen become exiles. Everywhere they go bad things happen. When Nal's foster sister tries to serve him yogurt it turns to puss and blood. When they try to rest in a green garden, "the green garden where they were resting dried up and withered." To make things more explicit still, the Gardener's wife begins to insult them, saying, "What cursed sinner has come here and caused the garden to dry up?"

As with the barren woman and the ocean, we perceive here an immediate cause-effect connection between a person's condition and the natural environment. It is, of course, a complementary reversal of Tharoor's images of a regenerated landscape. And that, if you recall, was a response to birth. There is a direct link here too between the withered garden and childlessness. King Nal and his wife had a daughter and two sons, but one of the first misfortunes to afflict them is that their daughter is swallowed up

by a tree and their two sons kidnapped by traveling merchants -- rendering them as if without progeny.[11]

If negative human conditions deplete nature, or are reflected in depleted natural imagery, ambivalent environmental imagery is used to portray ambivalent human morality. For example, when in the Nath epic tale of Gopi Chand the rebellious women of Bengal gather to challenge a group of yogis, they are repeatedly compared to storm clouds:

> "Oh my! Just as clouds mount in the month of Shravan coming from the place of Indra, like those clouds mounting and mounting, are these women dressed in red and yellow."[12]

Now, of course rains are desirable, as are attractively dressed women, but they are also sometimes frighteningly powerful. The yogis are (quite rightly) afraid of being overwhelmed by the women, but despite themselves they are impressed by the splendor, power, and sheer mass of this female assault.

The ambivalent cloud metaphor is not inherently a gendered one. The male bard describes attractive women as storm clouds; women's songs describe an attractive but extramaritally seductive male with storm images.

In a song of Bhairuji recorded from a group of female pilgrims this lusty male god is associated with an electrical storm.

> Bhairu, on your head a cap is sparkling:
> What do I think? Lightning flashes, my Kala-Gora Bhairu.
> Bhairu, on your waist silver bells are ringing:
> What do I think? It is Lord Inder's thunder, my
> Kala-Gora Bhairu.

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[11]When a Rajasthani woman receives the blessing of a child as a deity's boon she may say, "now the garden has flowered." See Gold 1988 for flowering and female fertility in Rajasthani usage.

[12]Please don't be troubled by Bengali women wearing Rajasthani red and yellow; the bard is once again, as he did by placing the berry-wilderness in Bengal, trying to make his audience feel at home.

I wrote in my interpretation of this song addressed to Bhairuji, "He is attractive, seductive, and a little dangerous, like lightning and thunder . . . " (Gold 1988: 258).

Thus far, my examples show that human states of being may affect nature (as the barren woman or the ill-fated king); and that persons are poetically metaphorized by appropriate natural phenomena. Many more could be supplied, but I move on to actual interaction between human and "natural" actors. Another women's worship story, the tale of Brother Second, provides a simple confrontation/conflict. A young brother is on his way to his sister's marital home to bring her gifts of new clothing on an appropriate festival day. His path is obstructed by dangerous enemies in the desolate jungle. Addressing them as kin, he uses human moral values as persuasive deterrents to the predatory tendencies of his attackers.

> He met an enormous tree. The tree said, "Brother, I am going to fall on you." But he answered, "Don't fall now, I am on my way to dress my sister in new clothing for Brother Second. When I come back, then you may fall."
>
> Continuing on his way, he met a river. The river said, "I am going to wash you away." But he answered, "Brother, don't wash me away. I am going to dress my sister in new clothing for Brother Second. After I have done this, when I am returning, then you may wash me away."
>
> Going on his way he met a snake. The snake said, "I am going to bite you." But he answered, "Don't bite me now. I am on my way to dress my sister in new clothing for Brother Second. After I have done this, when I am returning, then you may bite me."

Nature, in other words, is impressed by the brother's culturally enjoined loyalty and devotion that make him confront danger in order to bring his sister gifts. Later when the brother is on his way home, he tells his sister about these earlier encounters. She supplies him with things of value to appease the threatening forces, and once again he passes safely. This example shows the predatory wilderness beings as polite and reasonable adversaries

sharing the same values as humans. (An ecofeminist interpretation of mutual respect between natural forces and the sister's needs could well be argued.)

My penultimate example in this segment is by far the most complex. It is extracted from an epic text in which it serves as a tale within a tale, complete in itself but not without implications for the epic's broader themes. Here human affairs and natural affairs and divine affairs are complexly mutually implicated. In this cosmology, accounts are kept on many different scores. One is the explicit insistence that humans should not excessively deplete natural resources.

The context, briefly, is that the epic's main character, King Bharthari, has hunted unsuccessfully, been cursed by female deer, and become lost in the woods to boot. He lies down in a shady spot and witnesses the following events:

> A hunter came along. And he had ten or twenty rabbits and ten or twenty deer, oh my, oh my, dangling from both his shoulders. He threw them down under the tree.
>
> That hunter lay down, he stretched himself out. The huntress is coming with his food. And that hunter looked up into the Banyan tree and upon it sat a cuckoo.[13]
>
> Now the cuckoo sat in the tree and above a bird of prey was circling. What was it? A hawk. A hawk was circling, thinking, "Brother, I'll kill that cuckoo. Brother, if he flies up then I'll kill him."
>
> Now down below the hunter too took aim. The hawk was circling, and it too might come into his line of fire. He wanted to kill both the cuckoo and the hawk with one arrow. He thought, "The hawk is circling and when he comes into line with the cuckoo, then, that's it! I want to kill them both with one arrow." So he fixed his arrow.

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[13] paphiyo; Hindi cātak, defined as Cuculus melanoleucus. This is a small black bird that occurs frequently in Rajasthani folk songs; it is associated with romance and moonlight, as it sings sweetly in the night.

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Then the cuckoo prayed to God: "Pīv pīv pīv pīv"[14] the cuckoo said:

"The hunter's fixed his arrow,
above flies a bird of prey,
Hey Lord, where and how can I save my life today?"

The cuckoo prayed once, twice, four times, he prayed. To whom? To God

"Hey God, how how can I save my life? If I fly upwards then the hawk kills me, and if I don't fly then that hunter is fixing his arrow, and he will shoot me down."

God heard that cuckoo's voice. So, from the roots of the Banyan tree a poisonous snake emerged. And it struck the hunter right on the back of the head, even as he was taking aim.

So he gasped for breath and tumbled down and died.

Meanwhile, the huntress came bringing food. She came and cried, "Alas alack! What kind of heap did you take today? Ten or twenty deer and ten or twenty rabbits -- you have so much, who can eat it? We are only two persons, two eaters, and how will we use so much? You have sinned, you have killed the whole earth and gone to sleep."

What are the immediate moral concerns propelling this chain of events? The hunter was greedy, the bird's prayer was heard, the hunter is killed, and his wife (before she realizes he is dead) condemns his violent excess. Between the hunter's sin and the divine punishment he receives are the cuckoo's prayer and the snake's bite. As eco-parable, this story recalls Gregory Bateson's characterization of Mind in the system: "Call the systemic forces 'God' if you will" (Bateson 1972: 434).[15] The entire woodland drama and its meanings are further motivated by the epic's larger themes. The onlooking King Bharthari will in the next act decide to be a yogi and renounce the world with its endless chains of inevitable interpersonal violence.

With this tale nature no longer reflects or metaphorizes human conditions, as in the first two sets of examples, or responds

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[14]Conventionally, this is the call attributed to this bird -- thought to sound like "beloved" (piu pīu)

[15]See Gadgil 1989 for a very interesting discussion of hunting castes and traditional ecological limits on their activities.

appropriately to them, as in the story of Brother Second. Rather elements within nature participate actively and consciously in events ultimately manipulated by divine authority. A final example presents nature not as manipulated by divinity but rather as a participant in worship.

Once again, I cite a song of the Rajasthani divinity and avatār of Vishnu, Dev Nārāyaṇjī.

> When Dev Nārāyaṇ took birth on Mālāserī hill, that place became Mathura city. From happiness a dry tree became completely green, and the peacocks' voices began to cry.
>
> When Dev Nārāyaṇ came to Dehamālī village then the stones, out of happiness, bowed . . . and the trees made a joyful celebration (Gold and Gujar 1989)

Trees and stones, too, may experience devotional emotions so strongly that the landscape is permanently altered. The power of Dev Narayan's majesty humanizes the very stones. Here nature and culture have merged. The examples explored in the next segment, however, concern ways of defining the difference between humanized and wild landscapes.

Penetrated boundaries, demographic flux, and the appropriate use of territory

In an earlier study Bhoju Ram Gujar and I used Rajasthani folklore to discuss phenomena we called "divine conservation" -- manifested in the existence of untouched wooded areas within the bounded domain of a deity.[16] In researching the oral traditions concerning deities' bounded territories, we found that shrine lore demonstrated ways that divine sanctions effectively inhibit

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[16] I stumbled on wooded shrines while participating in pilgrimages and thought for a while I had discovered something new. I of course soon learned that sacred trees and groves had often been discussed by India's cultural historians and folklorists (e.g.: Kosambi 1962; Sen Gupta, ed. 1965). For natural scientists these groves, known to shelter species of flora and fauna that have disappeared elsewhere, have been of particular interest (e.g.: Gadgil 1984, 1985; 1989; Gadgil and Vartak 1975, 1981; Vartak and Gadgil 1981).

human interference with a particular environment Underlying these severe sanctions were ideas about authority and responsibility, as well as strong positive evaluations of "unspoiled" beauty in woods, water, and wildlife. I cite at some length from that paper:

> The following statement, which I translate and slightly condense from Bhoju's Hindi, is his own synthesis of dozens of responses from rural Rajasthanis to questions about the relation between gods and nature:
>
> > Whenever any living being, whether god or human, is in a place where there are trees and plants and many kinds of warbling birds; and a lake, river or stream of murmuring water, then in such a place of natural beauty, a god or a person--any soul--if it is alone it doesn't feel the feeling of loneliness. Just from thinking of natural beauty the mind receives bliss; so from dwelling there, what happiness!
> >
> > Necessarily, gods and goddesses love nature, and that which we love we wholeheartedly protect.
> >
> > When guests, friends or those seeking shelter come to our home we give full attention to their needs and protection, and if someone attempts some unauthorized action or commits some crime in our home or fields we punish them. Similarly, gods also give protection and hospitality to those who come within their boundaries, and those who commit crimes within their boundaries they punish either physically or economically.
> >
> > Every god loves nature and loves natural things within his own boundaries. He protects them, maintaining his responsible authority. He wants to be surrounded by green trees and plants and water; he wants animals and birds to receive shelter (Gold and Gujar 1989:214-215).

The key terms here, as identified in that earlier study, are bliss (ānand), protection (surakṣā), responsible authority (zimmedārī) and shelter (śaran). We continue:

Rural Rajasthanis dread loneliness and fear out-of-the-way places. But, although many shrines -- particularly those endowed with green trees and clean running water -- are located far from human habitation, they are places not of fear but bliss. This bliss is enjoyed perpetually by the deities who reside in these pleasant surroundings, and briefly partaken of by the pilgrims who visit them.

If, then, the sources of bliss for humans and gods are fundamentally the same, how shall we explain why sustained bliss in unflawed natural beauty exists for deities but not for mortals?

The answer lies in the two linked ideas of protection and responsible authority. Successful protection is a manifestation of genuine authority, and behind both stands the notion of effective power. Deities protect their domains and the life within their boundaries, and it behooves them to do so. Just as humans lose prestige if their houses fall into disrepair and they are no longer able to offer hospitality to guests, so would a deity's fame diminish should its place suffer environmental deterioration. Therefore, deities are understood to manifest their power in the righteous protection of their banis' beauty and purity (Gold and Gujar 1989:215).

The boundaries of shrines are special boundaries secured by special powers. The folklore that surrounds many of them (and this formed the substance of our 1989 essay) offers proofs of those powers: the goddess's honey bees sting anyone who dirties her land; workmen are killed by their own machine when they try to put a road through a deity's territory; drivers attempting to transport materials for a pipeline fall ill each time they attempt to cross a divinity's border. Yet shrine boundaries are meant to be traversed by pilgrims seeking to share in divine bliss (but advised not to stay too long) and by wildlife drawn to natural bounty as well as grain-offerings from pilgrims available to them within gods' banis.

In other folklore genres other categories of land as well as other visions of appropriate use and control of natural resources are posed. These genres too may be concerned with boundaries and the crossing of boundaries. Since divine ownership is no longer at

stake, human uses and potential abuses of different territories becomes more central.

In the epic tales of Gopi Chand and Bharthari, spaces are politicized, gendered, and bounded. The center, innermost realm -- the color palace -- belongs to queens. Outside the Color Palace we find the Jewel Square or Bazaar, where ordinary city life goes on. Beyond lie two important locales: the Garden and the Waterside. These are places on the edge, between city and country. They are the setting for encounters between yogis from the forest and women from the city. Beyond all the places named thus far lies the jungle, the wastelands, the woods, the uninhabited countryside. Intercourse between castle and city, and the surrounding jungle or forest is critical to the action of both tales.

One of the more hilarious situations arises in Part 1 of Bharthari's tale. A king has promised his daughter as bride to a talking donkey, if the donkey is able to build double walls of copper and brass around the city in three days. The donkey manages this feat (by stamping his hoof and calling on Guru Gorakh Nath) but leaves no opening just in case the king should back out of his part of the bargain.

The population wakes up to this dreadful situation, just as the donkey had predicted:

> "When someone has to go to the latrine they will beat their head on the wall. As for the livestock, how will they take them to graze? Where will the people go to shit? When it's dark they can squat near the wall, but where will they go once it's light?"

The king has no choice but to go through with the shameful marriage. Life can't go on, even for half a day, without an ongoing physical relationship with the land beyond the city walls. But this relationship must be a balanced one. A recurrent motif in the tales of Gopi Chand and Bharthari has to do with demographic imbalances caused by untoward population flux.

Twice in Bharthari's tale and once in Gopi Chand's entire populations are temporarily displaced. In Bharthari Part 1, a Potter decides to quit his city. The Potter's departure precipitates that of the rest of the populace, and the king is informed:

> A couple of Royal Servants addressed the king: "A complaint, a complaint! Great King."
> "O Royal Servants? What complaint have you brought?"
> "Grain-giver, over whom are you ruling here? Only hooting owls are left here in the village. The whole city is empty. Not even a child remains."
> "Why?"
> "Who knows why they left? But, I'm telling you sir, there's no human beings left here."

People in the jungle and owls in the city present an alarmingly topsy-turvy state of affairs requiring immediate redressive action on the part of the king. In Gopi Chand Part 3 a similar situation arises when all of Bengal is depopulated because of a contest between lady-magicians and yogis. The yogis win in the end, turning not only the tricky, ill-doing women but their innocent husbands into braying donkeys who must forage in a wilderness already severely depleted. Consider the similarity of this scene to the one I just cited. Only a few old folks remain and they go to the king

> "We have a complaint, grain-giver."
> "Old folks, who has committed a crime against you?"
> "Grain-giver, out of the whole population of the city, only us, a couple of old folks are left."
> "So where are all the men and women?"
> "Even if you search, you won't find them anywhere."
> "Why, where have they gone, old folks?"
> "Grain-giver, fourteen hundred yogis came to the garden. And they made all the women into she-ases. And afterwards the men went to search

> for them, and they made all the men into he-asses, and drove them into the jungle and left them. Your jungle has become populated, but your whole city is deserted . . . ."

Note again the stress on an upside-down situation that needs righting if the king is to maintain his kingship.

These tales reveal a dynamic socio-geographic scheme where any area of human dwellings is and must remain in vital and balanced connection with surrounding uninhabited areas -- both cultivated fields and uncultivated woodlands. The population's well-being depends on this interconnection in their own daily lives, and so does the king's. Too many persons streaming into the jungle depletes the jungle's resources and ruins the city too.

One further example from Bharthari's epic recalls Richard Eaton's fascinating description of historical "saint-developers" in Bengal (1990). It has to do with the establishment of the city of Ujjain in the middle of desolate jungle by the same magically empowered donkey-prince previously mentioned -- who has been banished with his bride from her father's kingdom. After building the city, this prince creates wells in the surrounding jungle and sends his messengers around to nearby villages:

> "Bring tenant farmers. Tell them there are ready-made mansions, mansions of copper and brass, for them to live in, and there are wells and step-wells for their care. Let them clear the land. For five years I will forgive the taxes, and I'll support this land, and take care of these mansions."
>
> So everybody's minds were spoiled [by greed] and they abandoned their grass huts.
>
> "Let's live here! There are fine, beautiful copper and brass mansions and we can keep them, and there are fine wells and step-wells and no taxes for five years, no taxes at all! In this kingdom you can earn and eat and enjoy life."
>
> Well sir, within twelve months that city filled up, people crowded together like a folding gate. The whole city was populated, and there were numerous markets, and tenant farmers came and began to farm.

Why does the bard view this opportunity to settle new and rich and untaxed territory as inspiring ruinous greed. Why doesn't

opening up the jungle to cultivators seem a great good? The bard's clearly expressed disapproval -- completely gratuitous and extraneous to the plot of the epic -- suggests to me the same disapproval of excess that caused the hunter's demise in the previously narrated story.

I return to women's tales for a different perspective on relations between city and uninhabited woodlands. Here too, in a story told to worship the Sun God, is a vision of bounty divinely granted to an exile in the wilderness. But this bounty is not wrested by magical power and made available to the masses in the service of royal self-aggrandizement. Rather it is bounty received by a single and singular woman as a reward for her single-minded devotion.

The story is called the story of the Jungli Rani. After quarrelling with her mother the heroine runs away into the woods:

> Then she came to a banyan tree and a step-well and nearby was a pipal tree[17] with a hollow niche in it. She climbed into the hollow and there she sat and sat and the Sun God gave her his grace. He gave her nine kinds of treats, thirty-six sauces and thirty-two treats and in a small clay pot he gave her good water. Who? The Sun God, he gave her his grace. So there she sat and ate bread and drank water. Right there in the hollow tree she lived. Twelve months passed.

Here is an idyl of living off the land in perfect self-sustaining bliss. But for a single woman in Indian folklore such idyls rarely endure.[18]

> Now a king was out hunting in this forest, accompanied by his barber. But he got lost. Coming upon the step-well and the banyan tree, he went there and lay down. He went to sleep and his mouth fell open in his sleep. A crumb fell into his mouth from one of her nine kinds of treats. He had never

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[17]Pipal trees are proverbially famous for offering shelter to small animals in danger.

[18]See also Ramanujan 1991

tasted such food, the kind of food that if you eat one crumb your soul is utterly satisfied

The king thought, "I have never tasted such delicious food. I am a king, but I have never eaten anything like it." The king was astonished. How could there be food this good in the jungle? Then another crumb fell. And she was drinking water and a drop fell into his mouth and he said, "O, I was so thirsty and with one drop my thirst was extinguished." And another fell and his soul was satiated

The upshot is of course that he marries her. Having experienced life in the pipal tree, the jungli rani continues faithfully to worship the sun god and never really adjusts to the palace. I originally perceived the Jungli Rani's story as a strongly feminist tale (Gold forthcoming). It can just as well be seen as an ecofeminist parable. The king's marriage to the jungli rani could be male appropriation of a bounteous nature understood as female. But this bounty is not easily settled within the palace walls, and the Jungli Rani's loyalty to the Sun God brings discomfort and suspicion upon her in her husband's city. Whenever her actions are criticized by her husband, the Jungli Rani demands forthrightly, "From where did you bring me?" and reminds him of the tree trunk -- affirming her original and true identity with the wilderness. Like all worship tales, the story ends with a plea for divine grace just as good as that received by the main character. In other words, women seek the Sun God's blessings and bounty, and they would like to contain this bounty in their own homes perhaps with greater success than the Jungli Rani.

In this part of my paper I have poured out a lot of images and narrative fragments in rapid succession. The first batch were concerned with the mutual construction of human beings and a natural environment that at times became actively involved in human lives. This batch illustrates categories of environment and offers some prescriptions for appropriate behavior in relation to them, and for human movement among them. All these examples reveal a strong sense of mutual dependence between settled and unsettled territories. In the one example that suggests it, the possibility of further human encroachment upon the environment

-- the settling of the wilderness as in the founding of Ujjain -- is viewed with ambivalence.

While a condition of homeostatic grace between a human being and the environment may be possible for some special persons (as the Jungli Rani in her tree or the meditating ascetic), overuse and depletion remain perpetual dangers for ordinary people. The system may right itself (as when the snake destroys the greedy hunter). Or proper government may be required to institute control -- as when the kings retrieve their citizens from the forest. But kings, please note, at least in the examples I've presented, never act on their own authority. Rather they are portrayed as dependent on subjects who perceive dangerous imbalances and prod their rulers to action. The jungli rani individually propitiates her protector and provider the Sun God, and her co-wives don't participate, nor do they share in the fruits of her worship. But in the context of village ritual, her story is told among a companionable group of female Sun God worshippers.

In the next part of the paper I turn (at last) to collective action in relation to human use and control of natural resources and conditions, as well as in relation to human perceptions of divine participation in that use and control.

TO BE CONTINUED

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Cultural Constructions of the Natural Environment in and beyond Rajasthan
PRELIMINARY DRAFT of THE SECOND HALF
of a contribution to the conference on
Common Property, Collective Action and Ecology

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III. Two rituals: Production, reproduction, and community action

> Human activity consists of interrelating practices of various kinds--intellectual, instrumental, communicative, and so on. To separate one of these practices in order to make it the transcendental, or even ontological, foundation for all others is to distort both what is separated and what is left of the whole after the separation. The relations that define human activity are without foundation or, what amounts to the same thing, provide at each moment all the foundation that is needed.
>
> . . . production without ritual is blind and ritual without production is empty (Valeri 1991:142).

I turn now from ways of conceptualizing human relationships with the environment to collective rituals designed, in part, to control that environment -- from images to actions (but I shall not abandon storytelling altogether). How does the production of consumables interlock with the reproduction of the society that consumes -- a reproduction that is at once biologically, socioculturally, and ritually effected? How do persons engaged in productive activities collectively mobilize to appropriate natural and divine powers, even as they individually pursue the well-being that material profits bring?

Cow Worship

I have written at some length about the Day of Cow Worship, also called Calf Twelfth, in my book Fruitful Journeys. Here I will

summarize a few salient pieces of the description and interpretation presented there. While my earlier focus was largely on gender and multiple responses to mortality, to recast this annual festival's meanings in terms of collective action, common property and ecology requires only a slight shift in emphases.

Cow Worship takes place on the dark twelfth of the month called Bhādra (August-September) -- a month that is the harvest season for some major kharīf grain crops including corn -- and incidentally, holds more than its share of festive events in rural Rajasthan. In Ghatiyali on the morning of Cow Worship, a single cow with a calf beside her is led from one neighborhood to another in each half of the village by a collectively employed herdsman. At each stopping place on the cow's route -- traditional public gathering spots, usually near a temple -- groups of women who live in that neighborhood worship the cow and her calf. Preceding the arrival of the cow, the women -- seated in circles on the ground -- listen to the best teller among them narrate the story of Cow Worship -- a story concerned, among other things, with human manipulation of geophysical conditions.

> In the whole region it was raining, but in our place there was no rain. Then some teller, some Brahman seer, said, "There is a merchant here with five sons, and if he will bury his eldest son in the village water reservoir, then it will rain within this place's boundary, but if he will not, then there will be no rain."
>
> The villagers all began to mutter that he should do this, and finally he agreed to put his eldest son in the water reservoir. But he kept delaying. Jeth passed, Āsārh passed, Śrāvan passed and there was no rain and people began to die. Finally in the month of Bhādra he buried his son in the water reservoir. Then much rain fell: the reservoir, the gutters, the ditches filled with water.
>
> The day of Calf Twelfth came and women were going to the water reservoir for their play and they

called to the merchant's family to join them, but the merchant just answered, "If only our son were here!" The rest of the world had no grief, but the one who put his son in the reservoir had much grief.

Then the son's wife, who didn't know what had happened, arrived from her parents' home for the occasion of Cow Worship. She dressed herself and ornamented herself and was waiting for her husband. Her in-laws didn't dare to tell her the truth. Instead they told her, "He's just coming." She went to the water reservoir and her husband emerged from it alive, his head covered with mud. He bathed and dressed and they worshipped together. The merchant's wife praised her daughter-in-law for her good fate in being auspiciously married to a living husband.

Hey Mother of Calf Twelfth, as you kept her honor, so keep the world's! As you brought him back to life, so bring the world!"

In my book I place this story's message within the thematic complex of the whole festival day -- a complex that vividly celebrates the non-violent regenerative powers of women. The afternoon's events make this explicit. After separating to eat in their respective homes, women who worshipped together in the morning once more form groups and proceed to the village water reservoir, stopping on their way at houses where there has been a death during the past year, and insisting that the mourning women accompany them (as in the story). On the banks of the reservoir the separate neighborhood parties merge into one. At first the drummer's daughter performs solos, but soon there is collective singing and dancing. The atmosphere quickens with rowdy laughter; women "speak goat talk" (imitate male goats lusty cries). A few old women, wielding sticks, come up behind younger ones and, all in jest, thrust the sticks between their legs from behind, slightly lifting their skirts. "Many babies will be born" is the joke of the day -- repeated mantra-like but with giggles. Finally the laughing, joking women form a bright procession and march en

masse to the "fort" (garh) on the hill in the center of the village. This imposing structure houses the family of Ghatiyali's thākur or hereditary landlord -- who in 1980, although dispossessed of both political and economic power was still in some ways symbolically central to the community. (In the late eighties he was able to get himself elected sarpanch.) At the Fort the celebrant visitors crowd into the courtyard of the women's quarters where they merrily serenade the thākur's wife with bawdy songs. After this, its energy spent, its mission fulfilled, the crowd disperses.

Adding up the two halves of the day, Cow Worship testifies to the existence of a folk "realm" or "counter system" -- to borrow two of A.K. Ramanujan's evocative terms (Ramanujan 1986; 1991). The parameters of this alternative realm are defined, it seems, by women in ways that contradict, subtly resist, or "bracket" (Ramanujan again) the often dominant Brahminical cosmology and patriarchal hierarchy. In this narrated and performed folk realm, men evidently lack the capacity to create life that women possess. They are thus driven to barter with the gods and elements. Male ritual wisdom brings life-giving rain and joy to the community, but only at the expense of an individual's life: "The rest of the world had no grief, but the one who put his son in the reservoir had much grief." Women claim both in their unity and their ribaldry a moral power decidedly different from the power of the "brahman seer" and of men in general (although in playfully imitating male goats they appropriate, and thus testify to their appreciation of, male sexual power).[1]

The key elements of the day are the circulation of the cow, anticipated and greeted by group storytelling and worship; the

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[1]The bawdy songs performed on the afternoon of Cow Worship, called keshyā and also performed at Holi, are verbal celebrations of a freefloating female sexuality that seeks mutuality with male pleasure. I have discussed these extensively elsewhere (Gold 1991). By ragging each caste for its sexual characteristics and all women for their propensity to "play" keshyā directly counter artifices of honor, shame, and pride that control female behavior in other contexts.

claiming of women from houses of mourning; the joking and dancing and goat talk at the water reservoir; the visit to the thākur's wife, and the story itself with its double death-into-life sequence: draught replaced by rain (at great cost); sacrificial victim restored to life (at no cost). In the sweeping movement from neighborhood groups to the banks of the water reservoir -- common property par excellence -- women are united across caste boundaries. On the road to the Fort no dignitary escaped the stick; the laughing and irresistible women came first at me and then at the Paṭwārin (wife of our friend Paṭwārījī). Eventually they form one grand joking and singing procession to the symbolic center of village unity. I should acknowledge that the Fort is also the apex of the traditional social hierarchy, and the model for patriarchal restrictions on women: No one keeps purdah so fiercely as the ṭhākur's women, and the ṭhākurānī received her vital visitors reclining on her cot with, as I noted in my field diary, a "grim look" on her face. Yet the day's action fiercely stresses parity above hierarchy and women's power above male power.

As an ecofeminist parable having to do with the collective management of community prosperity, the festival of Cow Worship has several linked messages. Given the conjunction of rain-making and fertility themes, Cow Worship promotes both the reproduction of persons through sexuality and the production of food through successful fruition of agricultural cycles -- viewing these aspects of community survival as all of a piece. Both are embodied, perhaps, in the placid mother cow and sweet-faced calf who receive the morning worship. But without active sexual union there would be no mothers to worship, the afternoon seems to declare. The well-being of everyone and everything depends on rain, and therefore on the favor of divinities, but the negotiation of that favor through male-controlled sacrificial rituals is insufficient. Only women's collective celebrations of sexuality and fertility, and their worship of the goddess, effect appropriate harmonies among people and between people and the environment.

Village Outside Cooking

In Fruitful Journeys I give the event called Village Outside Cooking a very cursory glance. Here is the extent of the information provided there:

> . . . on the day called Village Outside Cooking all the animals from one side of Ghatiyali must be driven in the dusty dawn, before milking and before any housework is done, underneath a charmed rope suspended across the path in front of Four Arms[2]
>
> Auspicious objects and bundles of powerful substances dangle from the rope, the entire thing further infused with potency by a specialist's spells.

The substances suspended from this rope, a footnote adds, include "dust from the Floor of Four Arms, "body grime" scraped from Hanuman; ashes of burnt offerings to Tejaji and Sagasji a clay pot lid, five kinds of grain" (1988:42-43).

My interest in 1979-80 was focused on the attempt to unite the powers of different sacred places in the charmed rope, and in the use of power-imbued substances to do so. That all this trouble was for livestock-protection I noted but did not ponder. In researching the importance of the Four-Arms temple in village life, however, I was told again and again of its significance for the whole community:

> If the whole village wishes to pass a resolution or consider a special matter concerning general welfare, people will gather in front of Four-Arms to do this. Such meetings are held at this site, villagers asserted, because no one will speak falsely if God is observing. Moreover, whatever work is decided here, its outcome should be good because God has participated in the community process (1988:42)

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[2] This is the central temple of Four-Armed Vishnu -- the only village temple whose patronage crosses both caste and neighborhood boundaries. With the increasing size of the population, another rope came to be used near the shrine of Pabuji on the other side of the village.

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With hindsight I can see the morning events of Village Outside Cooking as an elaborate example of collective action aimed, on the one hand, at achieving individual well-being -- for the animals are not of course common property. On the other hand, just as much as grazing lands do, the health of livestock constitutes a kind of common property both as a sign of communal prosperity and, practically enough, because one sick animal will infect the others regardless of ownership. The spectacle of the herds running beneath the rope in the dawn is an impressive one -- testifying to a set of coordinated efforts not easily organized.

Like Cow Worship, Village Outside Cooking has a second part as well. As the name suggests, the rest of the day is devoted to cooking and eating. Each household in the village prepares the same meal: Rajasthan's famous picnic food: laḍḍū-bāṭī.[3] However frugal a family may be on ordinary days, on the festival of Village Outside Cooking everyone seeks to cook more than can be eaten (and eat more than can be comfortably digested). People invite one another, calling their neighbors and friends to eat; as all this circulation from house to house proceeds, in every house everybody is eating the same thing.

In past years every single household cooked their laḍḍū-bāṭī outside the village boundaries (and other villages in the area still do so). Whether the people arranged themselves to cook and eat by caste or neighborhood I don't know. However, eating outside would have removed them from their separate hearths and homes and further reinforced their solidarity, just as women were unified at the water reservoir on Cow Worship day. A collective decision

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[3]It seems worth describing laḍḍū-bāṭī as semiotic foodstuffs. The same unleavened whole wheat dough used for the daily fare of pan-roasted flat bread is made into round balls and baked in cow dung coals -- these are bāṭī; cooked bati are then pounded into crumbs, mixed with sugar, ghee, perhaps cardamom and a little coconut and then moulded back into balls the same size as the bati -- these are laḍḍū. Thus, through a series of shape-shifting and refinement, the most ordinary substance -- bread dough -- becomes the most special -- laḍḍūs.

The classic Durkheimian opposition between moral group and selfish individuals is one that Ghatiyalians also at times articulate with conviction. Thus they measure the calculative opportunism of the human mind against a moral order epitomized as samāj or society; pūrā samāj or the whole community. Many, for example, whom I interviewed about why they took their parents' bones to the Ganges insisted that no one would perform this moral duty were it not for social sanctions -- taunting, insults -- vented on those who didn't.

However, if conversation shifts to another common register, samāj or society represents false or hypocritical values based on the desire for public "name" or reputation. In this construction, responsiveness to social pressures is contrasted to genuine human goodness -- a compassion associated with the utterly selfless values of that seemingly most solitary of all beings, the world-renouncer. Here, perhaps, the Hindu villager leaves Durkheim behind. Yet, not infrequently, interestingly enough, the open loop closes when ascetics emerge as political leaders.?

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will have conquered the self" says this creator and purveyor of delectable morsels. The first chapter portrays Jagan pouring over his religious texts even as he runs a hard-nosed business "As long as the frying and sizzling noise in the kitchen continued . . Jagan noticed nothing, his gaze unflinchingly fixed on the Sanskrit lines in a red-bound copy of the Bhagavad Gita, but if there was the slightest pause in the sizzling he cried out, without lifting his eyes from the sacred text, "What is happening?"

Jagan deeply cares about the truths in the Gita, even as he methodically cheats on his taxes daily. Is he a hypocrite? I ask my undergraduates rhetorically. Absolutely not; he is a person capable of both moral and calculative reasoning, a complex person like you and me. His piety is no less real than his acquisitive instincts, and no less moral for coexisting with them. Even his ultimate decision to become a world-renouncer, Narayan makes us know, is linked to his attachment to his profits in a curiously perverse yet logical way.

?Gandhi is the obvious example, but there are many less celebrated cases; see Mayer 1981 on the ascetic as model for trustworthy politician. See also Anderson and Huber 1988 for the involvement

One of my associates in Ghatiyali in 1979-80 was a tall and proud young man in his early thirties, an only son, heir to the priesthood in a major Krishna temple, scion of a Brahman family that had seen better days but still possessed adequate landholdings by village standards. In 1979 the last months of the rainy season were too dry and crops that had begun well were perishing. My assistant, was worried about his harvest. He had been working with me for a few weeks and I had never heard him utter an English word; we always spoke in the schoolbook Hindi we had in common. One morning he arrived at my room declaiming with a charming air of mingled satisfaction and self-conscious naughtiness, "Might is right. Might is right." It took me a while to figure out what he was saying and why. Eventually the story came out that he had, the previous night, taken some strong allies and irrigated his own fields out of turn with water from the village reservoir. He well knew that by standards of collective morality he had done wrong. He was gloating, but shamefacedly. Although I was far more interested at the time in translating Rajasthani devotional stories, I noted his strange exuberance this day and noted also that he found a British saying to support his calculative act. Given the local opinion of English morality, he was in pronouncing the words "might is right" confessing his sin even as he gloated over its success.

Wade might nod sagely: "It is striking how little people in these villages are steered by a sense of devotion or obligation to a non-self-regarding 'cause'" (1988:195-6). Does this anecdote undermine the argument I've been carefully constructing here? Broken rules hardly prove absence of conscience. Predictably enough, individualistic attempts to preempt resources for "self-regarding" causes exist. But festivals like Cow Worship and Village Outside Cooking are statements and performances of a countervailing collective, communal morality. And their messages sustain an ethos where the natural environment remains

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Tambiah; Turner) attempt to delineate more potent mergings of ritual and efficacy.

harmonious with human needs when and because human beings manage some harmony with one another.

4.Nature unbracketed

Throughout the preceding pages I have attempted in various ways to present cultural constructions of the environment, alias a phenomenology of nature. I have been writing as if I knew what nature was -- bracketing that uncertainty in a philosophical fashion. Obviously, when I speak of the natural environment, it is always an environment understood in relation to people, constructed by people. Because these people are participants in a culture that presents them from birth with ways of seeing and using their surroundings, I have called this "cultural construction."

Nature in one Rajasthani village has appeared here in many different guises: a cultivated cucumber offered as a subtle bribe; a wild fruit free for the taking; a talking tree that that appreciates human values; a stone bent by reverence; a rainy season brought on by human sacrifice. I have considered the ways that people relate to nature through discussing different ways that nature's bounty is produced, owned, eaten; narratives where nature may be conscious actor or reflective setting; rituals that comment on and claim control over natural forces even as they mobilize collectivities.

The relationship between nature and culture has been a major traditional arena of anthropological exercise. Many have recognized the dichotomized nature/culture formula as one springing from and embedded in Western cultural categories. Ten years ago in a classic essay Strathern put it succinctly and firmly: "there is no such thing as nature or culture. Each is a highly relativized concept whose ultimate signification must be derived from its place within a specific metaphysics" (1982:177). Moreover, continuing to follow Strathern, one of the many assumptions implicit in the Western nature/culture dichotomy is "the notion that the one domain is open to control or colonization by the other" (Strathern 1982:181). Of course it is culture that Western humans have traditionally viewed as the proper and inevitable colonizer

The Sanskrit term prakṛiti, often used to translate, and translated as, English "nature," seems to suggest some different formulations. Prakṛiti can refer to an active cosmic principle, a manifestation of divine female power -- not just opposed to but complementary to and coterminal with the passive male puruṣa.[10] Third world women, writes Vandana Shiva, "have challenged the western concept of nature as an object of exploitation and have protected her as Prakriti, the living force that supports life" (1988:xvii). While Shiva's rhetoric is certainly open to criticism (see Agarwal 1991; Hardiman 1991), I find myself persuaded by certain aspects of the contrast she makes for reasons that the preceding pages should have made clear. That is, I see in Rajasthani ways of envisioning the environment (sections 2 & 3 above) a greater sense that nature may be conscious, less certainty that nature is to be fully dominated, and above all more awareness of systemic interplay between nature and people than I see in Western constructs. This by no means implies that Rajasthanis don't actively exploit their environment: every example I've given (and especially those in section 1) testifies that they do. Yet consumption itself is differently construed from culture to culture, and may involve more or less sensitivity to that which is eaten and why.

For the past three decades environmental ethicists, philosophers, and ecologists have participated in a discourse on environmental crises that looks outside the mainstream Western ideology of progress, conquest, and technocracy for wisdom. Both

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[10]Rajasthani farmers contrast the benefits of prākṛitik khād and rāsāyanik khād or "natural" fertilizer and "chemical" fertilizer. From continued use of chemical fertilizer, my Rajasthani research collaborator writes, "the fertility of the earth, that 'natural power' (prākṛtik śakti) that was there, is finished off" (Gujar 1991). The semantics of prakṛiti and prākṛitik in agricultural usage await exploration -- particularly the association with a vital energy understood as female. See Dube 1986 for a feminist exploration of South Asian gender imagery in agriculture that is less exuberant than Shiva's. There is extensive material on nature as female, if not as power, in Western thought; see for example Merchant 1990.

American and Indian authors have posed a fundamental contrast between "Western" understandings of how human beings are related to their natural environment and an alternative religious perspective culturally identified with Asian and/or native American and/or pre-Christian European cultures. The latter approach, in generalizations made by both Western and Indian advocates for environmental wisdom, is characterized by ecological sensitivity often described as "holistic" -- including human beings in biomoral community with animals, plants, and landscape. By contrast, this discourse finds in Judaeo-Christian traditions an ideology of unlimited exploitation, founded on humanity's separateness from and religiously sanctioned superiority to the rest of creation.[11]

Such a contrast is easily dismissed as gross oversimplification or cultural stereotyping.[12] The content of this paper suggests, however, that if relationships between humans and the environment in India are far from the totalizing holism idealized in environmentalist rhetoric on non-Western ecological awareness

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[11] An initial statement of this thesis that had great impact was made by Lynn White in the mid-sixties (White 1976). Defenders of Christian traditions responded by arguing that the Bible offers "stewardship" as an environmentally responsible concept. For examples of the continuing discussion and debate in the United States and England see Attfield 1983; Berman 1981; Berry 1981; Cobb 1988; Cotgrove 1982; Hargrove, ed 1986; Jackson 1987; Spring and Spring, eds 1974. For South Asian traditions in particular as fostering holism and ecological wisdom see D'Monte 1985; Krishnamurti and Schoettli 1985; Nagchaudhuri and Bhatt 1987. Bandyopadhyay and Shiva 1985, 1988; Gadgil 1989; and Guha 1989a factor historical, social, and political contexts into their discussions of South Asian understandings of the environment and South Asian environmentalist movements, and thus illuminate many inherent complexities ignored by broader and less detailed accounts.

[12] See Tuan 1974 and Guha 1989 for cogent critiques

this does not mean that they lack power or that they are identical with Western approaches.[13]

Recently anthropologists and even economists have attempted to depict situations where human labor is meaningful in ways that Western social science has forgotten or ignored. In a critique of Western economic attitudes, Stephen Marglin points to a devaluation of work as something that "stands outside, if not actually opposed to, life" (1990: 225). He contrasts this situation with, for example, ancient Greece, where "... in agricultural labour ... the confrontation with the task imposed, the difficult and strained occupation, acquire value and prestige in the measure in which a relationship with the divine is established, ..." (Vernant cited in Marglin 1990: 227). J. Stephen Lansing, summarizing the arguments of the French ethnographer Condominas, describes agricultural work as "a meaningful series of interactions between social groups and the natural world" (1991: 6). Lansing's own impressive book describes the role of "water temples" in Bali showing first their "practical role in irrigation management" but going on to argue that "they are essentially social and religious institutions" (1991: 49).

Returning to rural India, A.R. Vasavi's recent work in Karnatika reemphasizes the interrelationship between farmer's understandings of the moral qualities of their crops and the effects these have on cultivators and eaters:

> Crops from local seeds that are grown without artificial irrigation are called javari (organic) and are considered to be more tasty and strengthening than the crops growth with water. "Those who eat rice are like birds and those who eat sorghum are like wolves," is a

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[13]See Turner 1990 for a similar point about the Kayapo Indians of Brazil who -- he insists -- "have no mystical sense of reverence or respect for individual trees or animals" yet who, because of the degree to which their society is dependent on the natural world, do not see the destruction of the forest "simply as an attack on 'the natural environment' in our sense, but as a direct assault upon themselves as a society and as individuals" (Turner 1990:11-12).

> popular saying that connotes folk associations between food choice and strength. To be strong and hard working, pearl millet and sorghum are considered preferred food for agriculturalists... (1991:13-14).

Vasavi depicts an integrated universe for the agriculturalists she studies where the qualities of crops and land infuse the nature of persons. The introduction of "hybrid" seeds and of new methods of cultivation are incorporated into the farmers' self-perceptions altering content but not mode.

A final and elegantly framed example of continuities between religion, agriculture, and social structure appears in Gyan Prakash's meticulous history of bonded laborers in Bihar. Prakash notes that "Because ritual practices were dynamic events, they did not simply reflect but actively constructed cultural notions and social relations." Furthermore, "... ritual practices associated with spirits did not simply reflect the social hierarchy but represented it in forms that regenerated as well as problematized the malik's dominance as upper castes (1990: 209).

Prakash provides a fascinating example of tug-of-war over symbolic power in the phenomenon of mālik devatās who were "spirits purchased by the maliks [masters] for the protection of the village fields, crops, and their own landed property" (1990: 209). According to Prakash, the purchase and patronage of such spirits reinforced the landlords' control over both the social and spiritual worlds: "The guardian of nature became the castellan of land and landlords because, while ghosts were custodians of nature, land was held by landlords." Moreover, "Since nature, in the form of paddy fields, bore the imprint of unequal social relations, a violation of the transactional norms in the social sphere also disrupted the natural order of things. Malik devatas struck with terrible fury to ensure the reproduction of this order. Their power paralleled that of the landlord. But the two were not identical" (1991: 213).

This last statement is the critical point. For we see here that the symbolic domain is not just a reflection of the social one. This

observation gains credibility with Prakash's further explication of the ways that laborers who wished to rob from the landlord's fields could propitiate and conceivably win over the malik devata to their own causes. Despite the landlords' attempts to divinize their control of nature's products, this control was open to subversion through the same media -- the malik devata -- by which the powers that be sought to solidify their claims.

Within communities and collectivities united in relationship to the same environment even if divided in their control, profits, and access to produce, collective action and contested domination take place within the same, known ecological and social system. Outside them, in alien environments, the rules of the game are less clear; breakdowns more often.[14]

When I traveled with Rajasthani pilgrims outside of their own country I was surprized by the nostalgic fondness with which they recalled it. That August of 1980 their land was parched and dry, but we traveled through UP, Bihar, Bengal and Orissa all much greener and richer. Yet the Rajasthanis complained of both the ecological and moral qualities of these damp, muddy alien foreign lands -- and tenaciously sustained their physical well-being with wheat and other nonperishables brought from home. One woman pilgrim comparing her own country to these wet and unpleasant foreign parts put it like this:

"One's own land, well, one's own land is not like this land. This is a robber's land. Here there is no love-and-affection (moha-prit). In one's neighborhood, or among acquaintances, then there is love .... But here there is nothing."

Land and community, morality and relationship, are blended in this woman's mind just as they are in Shashi Tharoor's images of a resurgent landscape with which we began. Yet here, outside the familiar environment, a stark contrast indeed is posed -- between love and robbery or love and nothing. With no time to continue analytically, I close with this woman's evocative characterization

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[14]See the debate on why the Algonquin native Americans overhunted fur animals.,

of difference between a land of shared values and community versus a land of strangers. It is, I think, evocative of the human predicament, as well as of commons dilemmas, and the global commons dilemma. Yet as the folktale of Brother Second hopefully suggests, when traveling in an alien and seemingly hostile landscape it is sometimes yet possible to communicate, negotiate, and perhaps arrive at some understanding of mutual support necessary for survival. Eventually a greater moral unity -- a cross-cultural environmental ethic -- as Ramachandra Guha suggests -- may inform global action. But before that is possible, for those of us who aspire to "thinking locally," there is still a great deal to learn.

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NATURAE FERAE:

Managing Wildness in Colonial and Post-Colonial South Asia

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Managing Wildness in Colonial and Post-colonial South Asia[1]

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1. the standard environmental narrative

In this paper I want to examine several elements missing from or only barely represented in the standard South Asian environmental narrative. These missing elements comprise the related themes of wildness and wild animals, hunters and hunting. By "standard environmental narrative" I mean the emerging consensus which postulates a transition in rural South Asia over the last 150 years from a condition of ecological harmony, distributive justice and material abundance to one of environmental degradation, massive inequity and widespread immiseration. This narrative is recounted by various authors, in longer or shorter compass, to suggest the extent, and to pinpoint the origin of, contemporary environmental crises and to explain a correlated collapse of rural welfare in our time. Yet this narrative is flawed, I believe, because it leaves out of account crucial aspects of the human systems-natural systems interaction. Like Garret Hardin's original tragedy of the commons scenario, it occurs generically and often lacks a specificity of person and place, thereby evading concrete tests and forgoing the enrichment that historical data offer.

The standard historical narrative, which has come into focus over the last ten years, pivots on colonial policy errors dating from the decades 1850-1880, epitomized by the 1878 Forest Act, which stand out as a turning point after which the previously favorable linkages between social and natural systems began to rupture, dooming the populace to resource scarcities of increasing severity. The arresting story, an environmentally-spun variant of the widely known Indian critique of development, goes as follows:2

In pre-colonial South Asia, peasant and tribal communities understood their dependence on natural gifts of water, wood, fodder and soil. Well aware that landlords and distant rulers would not succor them during droughts, floods and famines, they strove for autarchy and minimized market links and technical innovations that promised higher income but risked subsistence failure. They embraced methods of risk-averse cultivation and appropriate technology that harmonized with natural cycles of decay and regeneration. They were conservationists by habit and conviction. Respect for natural processes was directly mediated by richly detailed knowledge of soils, crops, weather, medicinal herbs and edible plants, and was directly codified in well-known taxonomies, proverbs and songs; this same knowledge found its wider expression in rituals and myths

that celebrated natural forces and enjoined worship of the Earth Goddess. This deity assured the fertility of fields and animals but also women and human works in general. In fact it was women who were the principal repository of these cults. Women's contributions were practical, not just ideological; they possessed the vital skills of foraging, threshing, cooking, dairying and seed selecting which complemented the more male-specific tasks of timbering, plowing, sowing and reaping. Hence the gendered antithesis found in Brahmanic texts between a masculine realm of culture (samskriti) and a feminine realm of nature (prakriti), found little actual resonance in South Asia's villages; instead the attention of both sexes was focused on earth, plant and forest goddesses.

In this nearly vanished world of tradition, every community commanded adjacent jungle or forest, pasturage and arable, watercourse or well, and every household, despite undeniable degrees of social exclusion and privilege, had access by custom to all that it needed from nature. Vast stretches of jungle and forest isolated these lowland commons from each other, and where settlements were lodged closely together, as in narrow sub-Himalayan valleys, village boundaries were maintained across forests and pastures without the intervention of external authority. Traditional rulers never questioned the right of village communities to use and maintain these natural reserves, which by custom were untaxed.

Colonial rule disrupted this system at nearly every point. By sustained military action against traditional rulers in all parts of the subcontinent, by collecting high taxes strictly and in cash, by meticulously enforcing property rights in land and rents, by commercializing food crops and pressing the cultivation of indigo, opium, cotton, timber, sugar and jute for export, by creating an unprecedented demand for labor in cities, in the army and on plantations in India and abroad, by introducing the powerful technologies of steam locomotion, mass factory production and hydraulic control over rivers, by initiating a public relief system that barely worked during modest scarcities but that disrupted ancient practices of self-insurance and private charity, by appropriating the titles to the commons in forests, jungle, grasslands and fisheries, and, above all, by introducing a radical ideology which considered undisciplined Nature a stubborn challenge over which masterful Science must exercise control--by these means British rule systematically eroded the political, legal, physical, economic, moral and ideological bases of popular subsistence, broke open communal solidarity and ravaged soil, water, woods and shoreline. Perversely, this entire process was called "progress" (and later "development") by colonial and post-colonial rulers, whose arrogance was only equaled by their indifference to popular havoc. The long-term consequences, only now coming into focus, were to trigger irreversible environmental catastrophes and to dissipate the once widespread knowledge of sound farming and forestry upon which the well-being of millions had depended for centuries. Only shreds of this knowledge-base now remain; nonetheless these shreds, held most tenaciously by tribals in remote precincts, offer the

into focus, were to trigger irreversible environmental catastrophes and to dissipate the once widespread knowledge of sound farming and forestry upon which the well-being of millions had depended for centuries. Only shreds of this knowledge-base now remain; nonetheless these shreds, held most tenaciously by tribals in remote precincts, offer the starting point for a restoration of rural welfare and the repudiation of a meretricious Science. Only opposition organized from below, however, has been able to defeat the combination of an entrenched bureaucracy, a powerful lobby of industrialists, capitalists and contractors, forcing them to abandon a path of "development" that corrodes whatever it touches in nature or social relations. Dispersed examples of inventive means of resistance, preeminently the Chipko movement, offer the only rays of hope.

This compact edition of the standard narrative may not have captured all its essential features, let alone its refinements, and what was intended to be a precis may read more like a parody, thereby giving offence to every one. I run this risk to make the point that, while I believe much of its content is plausible, the standard narrative nonetheless has features that require amendment. First and most obviously, the trajectory of the narrative is implausibly biblical: South Asians, having accepted the poisoned fruits of colonial rule, are forever expelled from their pre-colonial paradise. This is a secular version of the Fall and is therefore fundamentalist. All fundamentalism is suspect because it is too sweeping (everything can be explained and all difficulties derived from a single cause), too nostalgic (the past is better than the present in all respects) and too pessimistic (the chance of regaining paradise lost approaches nil). Without blinking the urgency of current environmental crises, without excusing the ideological and policy errors that in many cases initiated them, and without forgetting the consequent reservoir of need in rural areas, it does not follow that every popular movement to protect a threatened forest or valley proves the bankruptcy of modern science, nor is it likely that every environmental crisis is irreversible and might have been avoided had traditional rural values been observed. The worst-case examples we hold before ourselves can be read as warnings as well as predictions of the future. In any case, the turn in the final lines of the standard narrative toward social learning and popular resistance suggests that despair--the despair that a fall from paradise would certainly justify--is inappropriate.

2. neglected fauna and the vegetarian bias

A second drawback of the standard narrative, and the one most pertinent to this paper, is that the Indian Eden is wholly vegetarian, i.e. the natural world of the pre-colonial past is consistently represented without animals. This may sound ludicrous, but no animals other than cows and goats, and certainly no wild animals, are found in the narrative; hence environmental wisdom and popular worship turn out to be the

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wisdom and worship of flora, not fauna. What, we should ask, did villagers in the past know about the large and small carnivores and ruminants, the numerous raptors, reptiles and rodents, not to mention the monkeys, which are to this day more varied on the Indian subcontinent than anywhere else in the world except Africa? The wild animals that inhabited the vast tracts of jungle and forest, cheek by jowl with cultivated fields and village settlements right up to the 1950s, are blanked out.

Let me give some examples of this vegetarian bias. Vandana Shiva, whose striking recent study of women, ecology and development in the third world offers what is perhaps the leading account of traditional environmental knowledge, quotes a defining passage from the Sanskrit Devimahatmya in which the Mother Goddess says "O ye gods, I shall support (i.e. nourish) the whole world with life-sustaining vegetables which shall grow out of my body, during a period of heavy rain. I shall gain fame on Earth then as Shakhambari (goddess who feeds the herbs) . . . ." (Shiva 1989: 56) Shiva further explains that

Forests have always been central to Indian civilization. They have been worshipped as Aranyani, the Goddess of the Forest, the primary source of life and fertility . . . .The forest as the highest expression of the earth's fertility and productivity is symbolized in yet another form as the Earth Mother, as Vana Durga or the Tree Goddess. . . . In ancient Indian traditions scientific knowledge of the plant kingdom is evident from such terms as vriksayurveda which means the science of the treatment of plant diseases, and vanaspati vidya or plant sciences . . . . (Ibid. pp. 54-56)

What Shiva does not report, however, is that only a few lines before in the same chapter of the Devimahatmya, the goddess Durga assumes a ferocious, bestial character: "When I shall devour the fierce and great asuras (demons) . . . my teeth shall become red like the flower of pomegranate; therefore when devas (gods) in heaven and men on earth praise me, [they] shall always talk of me as the 'red-toothed'" (Jagadishswarananda 1982: 147-48). The goddess comprehends the whole of creation--animal, vegetable and mineral--and it is mistaken to suggest that Durga is a deity of plants and flowers alone. Sanskrit and folk texts are rich in their knowledge of the animal world, deities such as Pasupati ("lord of the creatures") and Sona Ray (the tiger-king), as well as various kings and queens of the serpents, are and have been widespread objects of worship, while knowledge of hunting, veterinary medicine and animal husbandry abound in elite and popular expressions.

Another example: Bina Agarwal's comprehensive survey of the woodfuel crisis in India and the Third World emphasizes the fact that there already is a conservation ethic among rural and tribal peoples-- but wild animals find no place in it. She quotes

Swaminathan's judgement that "There is nothing we can teach [Rajasthani] tribals about trees" (Agarwal 1986:109), adding that "rural people usually, and forest communities in particular, have traditionally shown a deep sensitivity to the need to maintain the ecological balance and to preserve rather than destroy [trees]" (Ibid., 108). Forests and trees in her study represent a source of fuel and fodder, but are not analyzed as a habitat within which other, faunal species might shelter. A final example: in Ramachandra Guha's account of long-term resistance movements by Uttarakhand hill people against Forest-Department raj, the emphasis is laid on popular concern for plant-life. Guha observes that "Through religion, folklore and tradition the village communities had drawn a protective ring around the forests . . . . Often hilltops were dedicated to local deities and the trees around the spot regarded with great respect. . . . In fact, the planting of a grove was regarded as 'a work of great religious merit.' In parts of Tehri, even today, leaves are offered to a goddess known as Patna Devi (Goddess of Leaves), this being only one of several examples of the association of plants with gods" (Guha 1989: 29-31). And so on. In these and other accounts forest/jungle = trees/plants, a metonymic equation that skirts the fact that forests and jungles host hundreds of animal species and that popular and learned attitudes in the past toward forests and jungles were not the same as attitudes towards trees and plants alone.

My question is--and I ask with red teeth--where are the wild animals, and why are they left out of the standard narrative? If the cultural key to comprehending and then reversing South Asia's major environmental losses lies in part in reconstituting a special, ancient relationship between villagers and their natural world, should not all the culturally-marked elements in this natural world be recovered? From the accounts cited, one would conclude that rural Indians in the past were sophisticated proto-agronomists, botanists and forester-conservators--but that they were ignoramuses where wild animals were concerned.

That this is not the case is demonstrated by literally hundreds of tales and texts, as well as images in sculpture and painting, that show animals to be widely studied over the centuries and throughout the subcontinent. Many examples could be cited, but a particularly compact source is found in Francis Zimmermann's recent study of ayurveda, The Jungle and the Aroma of Meats: An Ecological Theme in Hindu Medicine(1982). There Zimmermann not only comments upon a list of several hundred animals whose flesh, broth and even blood were prescribed by Susruta and Caraka for medications, but he places these animals in traditional geographical zones (jangala or arid terrain, anupa or marshy terrain and sadharana or middling terrain) which can be broadly superimposed upon modern physiographic and ecosystem complexes (Zimmermann 1987: 103-11 et passim). While some of these animals are fabulous, the great majority were found in the wild as recently as 1950. Among the carnivores ayurvedic authors

distinguished a category called guhasaya or "meat-eating animals that have a lair" that included the lion, tiger, wolf, hyena, bear, panther, wildcat and jackal, (Ibid., 174). As will be seen, these animals were recognized in modern times to be dangerous and destructive and therefore of fascination to rural South Asian populations.

It seems likely that consciousness of wild animals as important players in South Asian rural life--not only the carnivores but also numerous deer, buffalo, pig, reptile and fowl species--has plummeted since about 1950 because most of them have been nearly wiped out in the interval. According to the naturalist George Schaller, independence ushered in a period of destruction when Indians recklessly shot down wildlife everywhere, even in sanctuaries and on private estates. The result was a period of destruction "that could almost be compared to the slaughter on the American prairies in the 1880s."7 Interestingly, Schaller attributes the decimation of wild animals to an essentially political motive: shooting regulations were rejected after Independence as "a form of colonial repression," as indeed they were (Schaller 1967: 3). Further, according to Schaller, "as a result of food shortages the government initiated a national drive [during the 1950s] to protect crops from the depredations of wild animals, and guns were freely issued to farmers, an action which literally doomed almost all animals near cultivation" (Ibid., 6). Finally, the cutting down of half of India's wooded area since 1947, the drive to bring marginal lands under cultivation in order to increase food production, and a vast increase in the number of "undernourished, diseased and unproductive" domestic animals that are allowed to graze without restriction in virtually all forests and most sanctuaries, have eliminated many former habitats of wild animals while establishing a rival population of cows and goats on the habitats that remain (Ibid., 6-7). Game fowl, carnivores and wild ruminants have virtually disappeared from rural areas in the last thirty years and are now found only in parks, sanctuaries and reserves. This actual erasure of wild animals from rural India in the last generation, I suggest, is one reason that scholars of traditional environmental knowledge leave the animals out.

3. mayhem by the beasts

It is not difficult to demonstrate that wild animals--especially the guhasaya of Ayurveda which were largely reclassified as naturae ferae or "wild beasts" in Victorian gazetteers--were once highly significant for South Asians. While nineteenth-century hunters pursued wildlife with sporadic enthusiasm and wrote spine-tingling accounts of man-eating tigers and leopards, local officials recorded routinely the destruction of crops and houses, poaching of domestic herds and loss of life from these and other animals such as jungle pigs, elephants and cobras. Landlords and village leaders routinely patronized tribal hunters using spears, arrows, traps and deadfalls, and district officials

offered bounties in an effort to allay the damage to crops, herds and humans.

A variety of authorities testify to the constant pressure of wildlife on human settlements, and in fact the presence or absence of tigers, pigs, elephants, jackals, etc., inside village precincts has been a fairly sensitive indicator of the state of the village economy: as cultivation expands the wild animals retreat, and as cultivation retreats the wild animals advance. A classic account of this tiger-jackal barometer is contained in a description of lowland Birbhum (Bengal) in the aftermath of the famine of 1769-70:

As the little rural communities relinquished their hamlets, and drew closer together towards the centre of the district, the wild beasts pressed hungrily on their rear. In vain the Company offered a reward for each tiger's head, sufficient to maintain a peasant's family in comfort for three months; an item of expenditure deemed so necessary, that when, under extraordinary pressure, it had to suspend all payments, the tiger-money and the diet-allowance for prisoners were the sole exceptions to the rule. A belt of jungle, filled with wild beasts, formed round each village; the official records frequently speak of the mail-bag being carried off by wild beasts; and after fruitless injunctions to the landholders to clear the forests, Lord Cornwallis was at length compelled to sanction a public grant to keep open the new military road that passed through Beerbhoom. . . . In two parishes alone, during the last few years of native administration, 56 villages with their communal lands had all been destroyed and gone to jungle, caused by the depredations of the wild elephants, and an official return states that 40 market towns throughout the district had been deserted from the same cause. (Hunter 1897: 67-68)

Similar information on other districts in the eighteenth century is not available, but nineteenth-century data on eastern India is in contained in early district gazetteers. Particularly revealing is baseline numerical information contained in the Statistical Account of Bengal (Hunter 1875-77). Hunter surveyed local conditions over the period 1860-1875 in 40 districts of present-day Bengal, Bihar and Orissa. His questionnaire sent to district officers asked, among other things, how many human lives are lost annually from snakebites and animal attacks?[8] The following table summarizes the returns to the first of these questions:[8]

Deaths from Animals and Snakes in Greater Bengal, ca. 1860-1876

District	Years	Animal	Snake	Total
Bengal proper				
24-Parganas	1869-70	120	756	876
Birbhum	1869	3	55	58
Bakarganj	1866-70	22	1125	1147
Faridpur	1863-69	N/A	N/A	852

Maimansing	1869	N/A	N/A	323
Chittagong	1873-74	17	79	96
Noakhali	1870-74	23	301	324
Tipperah	1868-74	75	--	75
	1868-76	--	346	346
Maldah	1853-60	320	447	767
	1863	110	--	110
Rangpur	1866-69	122	204	326
Murshidabad	1864-68	65	1110	1175
Jalpaiguri	1867-69	N/A	N/A	2034
Bihar				
Rajshahi	1864-69	127	1007	1134
Patna	1870	229*	--	229
	1873-75	5	837	842
Saran	1860-69	229*	211	440
Gaya	1869	137	151	288
	1873-74	186	322	508
Shahabad	1870-71	--	62	62
	1869-71	15	--	15
Tirhut	1870	21	119	140
Bhagalpur	1869	45	--	45
Monghyr	1867-69	378	210	588
Purneah	1863-75	184	--	184
Hazaribagh	1862-69	1004	--	1004
	1874	--	65	65
Lohardaga	1865-69	190	240	430
Tributary ST.	1871	2	23	25
Manbhum	1869	70	--	70
Orissa				
Cuttack & Balasore	1869	720	741	1461
Puri	1869	--	--	93
Khurdah	1869-70	7	33	40
		----	----	-----
TOTALS		4426	8444	12,870

***killed by wolves**

These data are clearly partial and the statistics unreliable. Not only did some districts not reply, but others made a point of noting that the figures represented only a fraction of the actual deaths, many of which were never reported to the police. Even with these qualifications, we can conclude that at least 12,870 persons residing in approximately one-fourth of British India met their deaths from wildlife in a 16 year period, and of these deaths twice as many resulted from snakebite as from animal attacks. Mortality data say nothing of course about the economic cost in terms of lost crops and farm animals, the usual targets of wild intruders.

What was the trend in animal attacks during the last quarter of the nineteenth century? Some officials reported a decline. For example, the collector of Puri told Hunter that "In the open part of the country the larger wild beasts have been nearly exterminated," while another officer stated that "the wild beasts which formerly infested Birbhum have now almost disappeared, with the exception of an occasional tiger or bear which wanders into the cultivated tracts from the jungles of the Santal Parganas." From Saran came a similar story: "Formerly, both leopards and tigers were very common in the District, but they have now completely disappeared. Wolves and pigs are still found . . . Wolves carry off a good many children, and sometimes attack sheep." Dhaka too reported a decline in the animal threat: "Tigers and leopards infest the jungles of the northern tract, but their numbers have decreased of late years owing to the clearing of jungle and the spread of cultivation." From Faridpur, however, came another view:

The larger sorts of wild animals found in the district consist of buffalos, leopards and pigs. The latter swarm in almost all the villages in the north-west and south of the country and do considerable damage. Their numbers of late years have increased to such an extent that the Collector expresses his opinion, that unless prompt measures are taken for their destruction, many of the villages of the district will be given back to the jungle. In some villages the outlying lands cannot find cultivators, owing to the depredations of wild hogs. The villagers have not yet learnt self-help, and seldom destroy these animals, which are allowed to breed and multiply undisturbed. (Hunter, 1875 Faridpur)

In Singhbhum, also, the animal menace had not abated in the 1870s:

The wild animals of Bonai are stated to be the same as those found in Gangpur. They are very numerous, and their ravages are at present the great obstacle to the spread of cultivation. The inhabitants of villages bordering on the jungles complain not of the personal dangers to themselves, but of the wholesale destruction of their crops, and say that they have to raise grain for the wild beasts as well as for their own families. This cause alone is said to have prevented the people from growing cotton, for which the soil is admirably suited. Of late years some herds of elephants, in the hills between Bonai and the Saranda pir of Singbhum, did such damage to the crops, that the villages at the foot of the range were abandoned by their inhabitants. (Hunter 1875: Singhbhum)

It would appear that the prevalence of large wild animals constituted a constraint on cultivation in some areas, but the overall trend in eastern India in this period is thus uncertain and may well have shown a different character in different districts.

The most terrible, and also culturally the most revealing, of encounters with wild

animals were the attacks on humans by leopards and tigers, i.e. man-eating or the practice of stalking humans for their flesh (Corbett; Anderson; Sankhala; Shaller). Man-eating certainly is not the norm for tigers, leopards and wolves, which natively prefer to feed on deer, cattle and other large mammals, but under special conditions--when they grow old and lame, or are wounded in the jaws, teeth or paws, or after epidemics or floods when human corpses lie unattended--they develop a taste for humans and attack them systematically. This possibility determined a degree of circumspection and fear around wild predators. The term "man-eating" itself is something of a misnomer, because it was women, often alone or with children while collecting water or firewood or pasturing cows or relieving themselves at dawn or dusk just within the jungle/forest, who were most exposed and thus disproportionately victimized. Yet tigers and leopards did not always wait patiently at the edge of the village or jungle to take their victims: aggressive, determined animals battered down hut doors and punctured their mud and bamboo walls to get to their victims.

Man-eaters were ubiquitous (if not common) until 40 years ago in most parts of India, and a romantic literature in English has grown up around them--especially the tiger (e.g. Williamson, Johnson, Corbett, Anderson, Shakoor Khan). Despite the persistent effort to glorify tigers as "gentlemen" who only rarely turn on humans and then only if provoked,11 unarmed villagers had no way of knowing which tigers would abide by and which would subvert the "gentlemanly" code of honor. Nor was the whereabouts of a man-eater predictably narrow and local. In some cases a solitary animal was seen to range over a vast area, terrorizing all the villages. For example, Corbett presents data on a man-eater in Chowgarh (Kumaon) that roamed through 1500 square miles and killed 64 humans in 27 villages in four months in 1926-27--approximately one kill every other night (Corbett 1957: "Kumaon," 45-47). Similarly a single leopard in Gahrwal, whose area of operation covered hundreds of square miles but centred on Rudraprayag village, killed 125 humans in 1918-19 by repeatedly stalking the same villages, killing six victims from one village on six separate occasions, five more victims in two villages on separate occasions, four in another village, eight in three other villages, eighteen in two more villages, and the remaining 49 victims in villages that he visited only once (Corbett 1957: "Rudraprayag," 34). What does the presence of such a monster do to village life? Corbett is firm that demoralization and fear result:

No curfew order has ever been more strictly enforced or more implicitly obeyed than the curfew imposed by the man-eating leopard of Rudraprayag. During the hours of sunlight, life in that area carried on in a normal way. . . . As the sun approached the western horizon and the shadows lengthened, the behavior of the entire population of the area underwent a very sudden and a very noticeable change. Men who had

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sauntered to the bazaars or to outlying villages were hurrying home; women carrying great bundles of grass were stumbling down the steep mountainsides; children who had loitered on their way to school, or who were late in bringing their flocks of goats or the dry sticks they had been sent out to collect, were being called by anxious mothers; and the weary pilgrims [en route to Kedarnath and Badrinath] were being urged by any local inhabitant who passed them to hurry to shelter. When night came an ominous silence brooded over the whole area; no movement, no sound anywhere. The entire local population was behind fast-closed doors--in many cases, for further protection, with additional doors to the existing outer ones . . . . Whether in house or shelter all were silent, for fear of attracting the dreaded man-eater. This is what terror meant to the people of Gahrwal, and to the pilgrims, for eight long years. (Corbett 1857: "Rudraprayag," 10-12)

The attack of a man-eater, who would invariably carry off human victims to feed on them in a protected spot, required survivors of Hindu victims to find the remains and obtain a remnant of the corpse for cremation. Trackers followed a grisly trail of shredded clothes, blood and hair to the scene of the human meal (Corbett 1957: "Champawat," 11). Corbett leaves no doubt that when a shikari managed to kill a man-eater, it produced exaltation and relief, especially among women who were the principal victims (Ibid., 28-31). Anderson, who like Corbett was called upon by villagers (in Karnataka and Andhra Pradesh) to pursue serial killers, is explicit about the psychological malaise that overcomes villagers terrorized by a man-eater :

While the death roll increases, superstition and demoralisation play a very considerable part in preventing the villagers from taking any concerted, planned action against their adversary. Roads are deserted, village traffic comes to a stop, forest operations, wood-cutting and cattle-grazing cease completely, fields are left uncultivated, and sometimes whole villages are abandoned for safer areas. The greatest difficulty experienced in attempting to shoot such animals is the extraordinary lack of co-operation evinced by the surrounding villagers, actuated as they are by a superstitious fear of retribution by the man-eater, whom they believe will mysteriously come to learn of the part they have attempted to play against it. (Anderson 1955: 8-9)

Anderson's final sentence, despite the dismissive s-word, alludes to the conviction in Karnataka that man-eaters are not strictly speaking animals but embodied, malevolent spirits.12 This belief, which shifts the problem of collective action into another register where magical power and spiritual malevolence are expected, is echoed by Corbett who describes a quasi-judicial procedure in which Gahrwali villagers identify the man behind the man-eater, a solitary sadhu. The sadhu, a known shape-shifter, is burned alive in his hut (Corbett 1957: Rudrapayag, 19-21). Corbett describes another instance in which the

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attempted execution of a sadhu was foiled by an official (Ibid., 22-23). Anderson adduces a third case of a village "voodoo man" who was identified as the human operator of a man-eater and killed (Anderson 1961: 56058). Despite gruif posturing of these two European authors, who are fearful of seeming indulgent of (or even too well informed about) a native "superstition," they describe an extraordinary course of collective action to cope with an extraordinary source of collective anxiety. That such persecution was a common remedy against man-eaters seems doubtful, but that animal violence against humans should be interpreted in moral terms should not dismay us: the relationship between (some) animals and humans inSouth Asia is no less permeated by spiritual exchange and moral causation than is the relationship between(some) plants and humans as explicated by Shiva, Guha and others. If man-eating is construed as a crime rather than as an accident of being in the wrong place at the wrong time, a desperate demotic judiciary will devise appropriate punishment.

4. Countermeasures against the beasts

The steady pressure of wild animals on crops, cattle and human lives elicited practical responses short of executing sadhus. Some of these responses were local and depended on individual cultivator's efforts, others required the help of co-villagers, still others depended on the agency of landlords or government. The brief accounting given below, however, suggests the limited ability of these methods to avert all animal attacks; as long as jungle and forest were abundant in relation to arable, a huge reservoir of wild animals could not be disciplined by essentially neolithic technologies.

Abandonment, toleration, propitiation. As several passages have already suggested, whole villages sometimes abandoned cultivation and decamped, literally conceding the field to the enemy. This was the simplest of responses. Less extremely, cultivation was conducted in some areas only during daylight hours, behind barriers of thorn or wood, or from a base at a distance. The latter practice is still common in the coastal mangrove swamps of the Bengal Sunderbans, which because of tigers and cyclonic storms have always been sparsely inhabited. The lower Sunderbans forest nonetheless supports extensive patches of paddy cultivation--as well as foraging, fishing and woodcutting--which are carried on by villagers who arrive in boats from the north. They enter the danger zone only in the company of fakirs, i.e. syncretic ritualists who study the habits of tigers and conduct pujas to placate them. These practical and propitiatory procedures successfully integrate local knowledge of plant, animals and terrain with known modes of reverence and enable villagers to pursue with confidence their livelihoods in a risky environment.

The fact that Sunderbans peasants cope with the tiger threat by worshipping tigers should remind us that popular attitudes toward ferocious animals are not undiluted; some ambivalence will necessarily surround animals that are strong and gorgeous as well as dangerous, and in a context where power and grace combine in an ultracharged principle of sakti, it is understandable that "the claw of the tiger is tied to the neck of a frightened child to ward off evil spirits" or that "some shamen and folk-practitioners in rural Nepal use sugar-coated tiger-hairs against hydrophobia" (Shrestha 1981: 184).

South Asians in the past--and not a too distant past--knew wild animals juxtaposed in nature, not confined by species as in a zoo. What the rhetoric

of Darwin calls the "struggle" between species have rise in India, in some places, to the thought that some animals might be destined to exercise control over others for human benefit. In Malda district,

> So long as (tigers) refrain from the habit of attacking men, their presence is desired rather than dreaded by the cultivators. Dr. Buchanan-Hamilton expresses the opinin when writing of this very region (ca. 1810), 'that a few tigers in any part of the country that is overgrown with jungle or long grass are extremely useful in keeping down the number of wild hogs and deer, which are infinitely more mischievious than themselves.' Mr. Pemberton, the Revenue Surveyor in 1848, also states that 'the inhabitants of Gaur are rather partial than otherwise to the tigers, and are unwilling to point out their lairs to sportsmen. They call them their chaukidars (watchmen), as being useful to them in destroying the deer and wild hog, with which the place abounds, and which make sad havoc of their crops. (Hunter 1875: "Malda")

Even more positive, in effect conservationist attitudes toward wild animals who destroy crops lives and have been reported. Gadgil reviews a range of practices that protected tigers, leopards, blackbuck deer, monkeys, storks, turtles, cobras and other small birds and animals from destruction in the past (Gadgil 1985). Sankhala and Jackson describe the remarkable sect of the Bishnois, founded by the visionary Jamboji in the 15th century, which continues to this day to protect both wild ungulates and trees in the Thar desert of Rajasthan. A key technical measure--the success of the Bisnois in ringing their fields with thorny barriers of khejdi-tree which keep wild carnivores away from their domestic cattle--allows them to shelter wild blackbuck deer as well. The inversion of usual values goes further among the Bishnois, who have been known both to sacrifice their lives to protect their khejdi groves and to kill poachers for daring to hunt the protected wild deer (Sankhala and Jackson 1985).

Nightwatches and noise-making. Another common response has been for villagers to defend their fields and animals by mounting weaponless guards. This was a measure more likely to be effective against crop-predators than man-eaters. At the beginning of the 19th century Buchanan-Hamilton

had observed in Rangpur district that

> when the rice approaches maturity, the cultivators in the parts which elephants frequent have to keep a watch on the crop every night. Stages are erected on posts 12 or 14 feet high; on one side of the stage a small shed is erected for the watchmen, who keep watch in pairs, one man feeding a fire which is kept constantly burning in the open part of the stage, while the other sleeps. In the event of elephants, deer, or hogs coming to the field, the sleeper is roused, and both men unite in attempting to frighten away the intruders by shouting and beating drums. They never attack the animals. (Hunter 1875: "Malda")

Interestingly, the most contemporary recommendations for driving wild elephants away from crops include "using spotlights, torches, loud-speakers, firecrackers, drums, and carbide noise-makers . . . (which) can usually drive out a marauding herd of elephants before they cause too much damage" (MacKinnon and MacKinnon 1986: 235).

In ticking off these various methods--retreat, watch and ward, magical propitiation--I am not judging efficacy; rather, I am trying to demonstrate that South Asians knew wild animals well and had a host of defensive practices premised on the constancy of animal attacks from nearby jungle. All the methods mentioned so far were local and non-violent, but if they failed professionals could be called in.

Indigenous hunters. Sanskrit sources as far back as Manu describe named groups of hunters, and it seems likely that shikaris or huntsmen once exited everywhere in the sub-continent. The absence of a monograph (as far as I can determine) is itself a further sign of the curiously vegetarian bias that has overtaken scholarship, for historical works that concern themselves with cultivation and cultivators abound. Pre-eminent among hunters in the past were tiger-hunters, who are generally represented as forest-dwelling tribesmen whose services are secured by village landlords or even rajas to rid an area of an excess of bagh.

There is some evidence that Mughal officials employed them in the vicinity of cities for the same purpose. For example, in Dhaka district the late Mughals "assigned a rent-free tract of land (jagir) to a class of men called baghmarias (sic) or 'tiger-slayers' " (Hunter 1875: "Dhaka"). This title was employed beyond Bengal where it was an honorific as well as a descriptor: "In ancient Nepal the killer of the tiger was regarded with high respect (and) used to be called baghmere (sic). Not only this, the brave hero used to be exhibited around local markets with a dignified turban on his head and gulal (colored powder) sprinkled all over the body" (Shrestha 1981: 183).

The source of the baghmaras' prestige was their success against tigers without the use of firearms. Both Williamson (1820) and Johnson (1827), among the very earliest writers on "oriental field sports," described a multi-spring poison-dart-launching device, triggered by the tiger him/herself, that they had observed in use in different parts of East India. (Hunter again describes its use in Purnea and Lohardaga districts 50 years later.) All the elements of this stationary crossbow-like machine--its strings, bamboo armature, arrowhead and aconite-derived poison--were assembled from jungle sources, and the range of mechanical, faunal and botanical knowledge required to deploy it with effect against tigers (including a safety release to prevent accidental discharge of the dart against a blundering cow or innocent human) suggest to me that it was one of the most remarkable neolithic tools ever used antwhere. The advent of rifles in rural India has surely despatched it to the scrap heap.

In addition to the tiger-killing elite, Johnson noted that "in almost every district of India there are a great number (of hunters) whose profession or business is solely to catch animals or game" and that "these men (whose forefathers have followed the same profession) are

brought up on it from infancy (and) become surprisingly expert" (Johnson 1827: 1-2). What is hinted at in the first gazetteers is that these hunters were highly specialized and employed special technologies (netting, hounding, digging pits, noosing, shooting with arrows, spearing, hooking, poisoning, driving into hidden stockades, setting fires, decoying from ambushes, etc.) to pursue distint species in particular terrains: elephants in Mymensingh, Tippera and Chittagong; buffalo, gharial, and rhinoceros in Rangpur and Jalpaiguri; cobras and boa constrictors in Patna and Monghyr; wolves in Hazaribagh, and so forth. This variety of effort--and I haven't even mentioned the means employed to hunt small birds, fish, lizards, turtles, honey and insects that were sources of food to rural and jungle populations--drew upon an archaic knowledge that needs to be recalled as we strive to recreate South Asia's Eden.

REFERENCE ONLY

In the early gazetteers as well the most skilled hunters are regularly referred to by tribal or low-caste names--e.g. Doms and Ganrars in Rangpur, Kols in Orissa, Kukis or Lushais in Hill Tippera, Santals in Burdwan and Monghyr, etc. Unskilled in cultivation or lacking the capital required to undertake it, these groups were nonetheless essential to the success of peasant agriculture during the delicate interval when ripening crops attracted wildpigs, elephants and deer. Sometimes feudal ties were forged by landlords to assure that protection by hunters was always at hand; otherwise a loose contract could be stuck when the pressure became unbearable for the tenants. For example, we read that "the proprietors of Sunderbans lots regularly employ shikaris on their estates," that "some (Rangpur) zamindars keep shikaris or huntsmen for the purpose of keeping down wild hogs, which would otherwise overrun the cultivation and drive away the tenants," and that "in the state of Bod (Orissa) 86 persons were devoured (by tigers) and the Raja was obliged to engage a huntsman from

Sambalpur" (Hunter 1875-77: passim).

The hunting of elephants was a traditional royal monopoly that continued well into the colonial era, and the Rajas of Susang (Maimansingh), Sarguja (Chota Nagpur) and Hill Tippera all raised significant revenue from elephant sales. Elephants were captured alive to be tamed, bred and sold. In British territory too khedda (elephant catching) was a valued monopoly. In 1866-68, for example, 200 elephants with a market value of at least Rs. 17,000 were captured by the Chittagong khedda establishment. While the shikaris, handlers and mahouts employed in these activities hardly shared in the profits, it was their intimate knowledge of the habits (and apparently the psychology) of wild herds that justified large government investments. Sukumar (1986) has some interesting notes on the introduction of khedda (stockade) techniques into Karnataka and the South under colonial conditions, where they displaced an older method of pit-capture; what is striking, however, is that khedda operations continued in Karnataka until 1971. Subsequently, a more random method of killing elephants whenever they raided villages or killed humans has been observed.

Bounties: Half a Market in Carcasses. It was not in khedda operations or by appointing expert shikaris (even a Jim Corbett or Kenneth Anderson) that British rule made its special contribution to controlling animal predation. Instead colonial authorities introduced the practice of paying cash bounties for the remains of designated animals. In this system, with its characteristic economism that created half-a market in carcasses (the District Collector was buying but there was no further selling), anyone who could kill a tiger or wolf and bring it to town would earn the bounty; thus bounties were not intended to support the notion, upheld by pre-colonial contracts and ties between government and hunters, that only certain

social groups had the skills to hunt. At the same time, paying cash for every dead animal of local odium introduced among professional tribal hunters a new calculus of numbers. Collectors began to suspect fraud (again, characteristic of an administration based on monetary values) and turned to smashing the skulls of the carcasses under their boot-heels to prevent their resubmission elsewhere. The Collector of Purnea recorded his suspicion in 1788 that some of the 600 tigers he had paid one pound sterling each for that year were not local products and that the wily Marang baghmara from across the border in Nepal were suppling some of the goods (Hunter 1875: "Purnea," 236-37). Nonetheless the system of cash rewards, which began at least as early as 1770 in Bengal, was applied in eastern India at differing times to tigers, leopards, cobras, elephants, rinos, hyenas, wolves, bears, civets, crocodiles and other animals (Ibid., passim).

The bounty paid for each species differed between districts, and one can see a pattern of anxiety precisely registerd in the rates. For example, in the late 1860s and 'seventies, only Patna, Tirhut and Gaya seem to have paid a bounty for wolves, only Noakhali, Tippera, Tirhut and Monghyr paid for poisonous snakes, and only Cuttack and Balasor thought a dead crocodile was worth anything at all. On the other hand, the rise (and fall) of the bounty paid for the same animal in the same district presumably registered a change in the degree of faunal pressure from that species: the bounty for a tiger in Darjeeling in 1869 suddenly quadrupled from Rs. 5 to Rs. 20, while in the same year rhinos and elephants had prices put on their heads for the first time (Rs. 5 and Rs. 20 respectively). While the Board of Revenue gave ultimate sanction to this bounty system, the Collectors could draw hunters' attention to particular threats (or even draw more hunters into the district from a distance) by sweetening the reward.

Manipulation of the bounties and the system itself seems in some cases to have had an effect. The 600 tigers killed in Purnea in one year has been mentioned. In 1847, 147 hyena heads were submitted in Malda in a single pile for a total bounty of 24 pounds or Rs. 240; the subsequent Collector of Malda, writing in 1871, stated that no hyenas had been seen in the district in the interim. In Monghyr no less than 1,000 cobras, "alleged to have been killed within the precincts of the town" were turned in for the bounty between 1871 and 1873; it is also reported that "a nearly equal number" from the nearby Jamalpur municipality were produced for cash. It is impossible to know whether bounties "worked" in colonial India--to take the example just given, Hunter reported contradictorily that the number of cobras in Monghyr and Jamalpur "do not appear to have sensibly decreased, but it is satisfactory to learn that deaths from snake-bite are now rare within the towns" (Hunter 1875: "Monghyr," 45). In other settings well-organized bounty systems, complemented by poisoning, trapping and an orchestrated campaign of species-specific hate for a wild animal, have succeeded; for example, the destruction of wolves in America (Lopez 1978). The data available to me is too sketchy to know what the bounty system accomplished in colonial India; I prefer to conclude that it demonstrated continuity in governmental concern about wild animals (the Mughals found it a problem) while betraying a predictable British preference for flexible, tangible, decentralized administrative practices. What it also did--subtly and only in part--was to fix a number, a price in the abstract sense--directly on animals as seen in the wild; it became possible at some point in the late 18th century for Indians as well as Europeans to say, as a tiger glided into the woods, "Damn! There went twenty rupees." This same logic was to be applied only much later to trees of teak, chir and then even sal.

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5. Shooting Laws and the Postwar Blitz of the Beasts

The epochal consequences of closing India's forests to its own populace from the last ~~quar~~ quarter of the 19th century on has been recently revealed by numerous scholars (e.g. Guha 1990; C. Singh 1986). A key piece of legislation, the Forest Act of 1878, is regarded as the turning point in the modern environmental history of the tree-covered zones of the subcontinent, while from the social-historical perspective the Act ushered in a new kind of policing that made it a crime to pick grass or collect twigs where generations before had unthinkingly done so. Arbitrarily enacted, driven by security needs exceedingly remote from those whose lives and welfare were to be disrupted, breath-taking in its lack of scientific rationale or concern, the 1878 Forest Act (and the regulations that streamed from it) is a nearly perfect colonial deed of arrogance. Everyone hates it. Nonetheless wildlife conservationists have to regard it with mixed feeling, because it introduced the practices of closed hunting seasons, bag limits and permits on the model of European forest rules. The wildlife preservationist impulse was never very strong in colonial India, mainly because the threat to wild animals was always recognized to be less than the threat from them. Nonetheless a few preserves were established in the 20th century, notably Kaziranga in 1926 to protect rhinosceros and Hailey National Park in 1936 (modestly named after himself by the U.P. Governor); Hailey, originally setting aside 99 square miles of terai-land for tigers and gharial among others, and expanded to more than 200 square miles subsequently, is now called Corbett National Park and is something of a flagship for a much larger system of parks and preserves. Hence the ~~legal~~ legal groundwork for a wildlife conservation movement was laid in the colonial period--as well as the potential for conflict between human and animal ~~needs~~ rights in the forest.

It is unclear whether colonial shooting regulations, which in theory protected wild animals, actually complemented or contradicted the system of giving bounties, which, logically extended, tended toward extinctions. Responding to different bureaucratic cues--the game laws pertained to the Forest Department, the bounties to the Revenue Department--there was potential for contradiction. On the other hand, the micro-geographies of their application may have prevented their colliding: bounties were designed to protect crops and cattle with the goal of expanding cultivation; game laws were intended to keep villagers out of the forest where their activities most probably would cause fires, but they in any case were relevant only in lightly populated areas. When wild animals did create problems at the intersect of these physical and policy terrains, special arrangements could be made. For example, the Elephant Preservation Act of 1887 allowed district officials to "proclaim" bulls in musth or marauding herds; proclamation offered a one-time bounty for a specific threat and neither relaxed the game laws nor exposed a valuable species like elephants to amateur khedda (Negi 1985: 62-63). Similarly the application of shooting permits was never so religiously enforced that senior British officials, princes, aristocrats and visiting VIPs could not be accomodated; everyone has seen the Victorian photographs in which the modest day's bag could include 10 to 20 or more dead animals or their skins behind the huntsman's grin. My impression is that the curious mix of bounties, closed hunting preserves, "proclaimed" rougues and generous exceptions to great white hunters and princely peers continued right up to Independence. Undoubtedly the beginning of an exponential rise in rural population, and the taking in of marginal lands including forest/jungle lands, was having an impact on

colonial
wildlife habitats in Europe's final decades, but the situation awaits more research.

its
What is evident and detailed in its specificity is that there was a terrible killing off of the animals during the war and the first 15 years afterward. Balakrishna Seshadri, who lived to see real conservationist measures at last put in place in the 1970s, is probably the most perceptive witness:

> Real, large-scale destruction of wild life began during the years of war. Forests were felled for timber and to make room for vast army camps. Troops entered them for training in jungle warfare, and the slaughter of the animals and birds began. Animals were machine-gunned in fun, and gregarious herbivores like the chital or spotted deer merely stood bewildered and stared in the direction of fire and were mowed down . . . . When the war ended and independence came, enormous quantities of guns and ammunition became cheaply available. The period of political transition was one of many uncertainties. Villagers who had lived, in the main, within the game laws, both from fear of punishment and lack of lethal weapons, assumed that the change of authority meant freedom from control. The weapons could now be procured. Forests were freely cut down for timber and fuel, and the animals and birds were slaughtered for food or sale of skin and feather. . . . (The village poacher) came to consider poaching as a democratic right. None was apprehended when the forest ranger who reported an incident was required to produce a third-party eye-witness for the conviction of the offender. Investigating rangers were threatened with a gun or with physical violence if they persisted . . . . There were cases of rangers being shot dead by poachers. So confident did the latter become that piles of game meat began to appear in open markets. . . .
>
> In the last two decades (1949-69)we have seen the emergence and then inordinate increase in the numbers of gentlemen-poachers, casual sportsmen who ride in jeeps and roam the jungles at night dispensing with the trifling formality of shooting permits. The time of year, sex, and age of the animals are all the same to them. But even so, the poacher, (whether) tribal or genteel, must be given second place when pinning responsibility for the murder of wild life, followed closely by overgrazing of domestic livestock . . . . I do not seek to minimize the destructive role of either (poaching or over-grazing) but habitat destruction through project work and what follows it is by far the most pertinent (reason), and the one most needing urgent attention. Development projects, among them river valley projects the most immense, pound into nature and leave it breathless and exhausted. (Seshadri 1969: 14-15, 19-21)

Let me point out that the post-colonial blitz in which newly armed rural sportsmen--this is a category begging for clarification since guns are not cheap and still in theory require permits throughout South Asia--turn

their weapons on whatever moves in forest or jungle was a characteristic of decolonization throughout the whole Indo-Malysian realm and not of India in particular (MacKinnon and MacKinnon 1986: 52). But the larger point in Seshadri's remarks is that simultaneously in India (and possibly elsewhere) after about 1945-50 the micro-technological advantages of fire-arms were combined with the macro-technologies of "development" (meaning logging, damming, road-building, etc.) to reverse at last the power equation between domestic and wild animals. Simply in terms of numbers, cattle and goats in India have won the war against chital, blackbuck and barasingha.

6. Return of the man-eaters.

Despite the marked trend toward species extinctions and habitat destruction in the recent past, India, Nepal, Pakistan and Sri Lanka have instituted an elaborate network of laws, administrative arrangements and protected sites for the conservation of wildlife. India alone has 55 national parks and 247 sanctuaries which together comprise 90,000 square kilometers or 3 percent of the country's surface area; the corresponding figure for Sri Lanka is 10 percent (Israel and Sinclair 1988: 307). India's constitution has been amended to include Article 51-A stating that "It shall be the duty of every citizen . . . to protect and improve the natural environment, including forests, lakes, rivers and wildlife and to have compassion for living creatures." There is thus a well-entrenched and well-intentioned if rather elite movement in India, as in the United States, which has for some time passionately and effectively advocated the interests of endangered species and occasionally succeeded in blocking a major development project. What is not quite evident is whether common cause can be made--or even whether the conceptual link has been established--between those who deplore the impact of degraded habitats on wild animals and those who deplore the impact of degraded environments on human beings. Historically, the fate of "habitat" and "environ-

ment" are practically the same, just as biologically speaking "wild animals" and "civilized humans" are linked: we share Cenozoic conditions and much of our DNA. Deeply ingrained cultural habits and a massive privileging of a single species in our thinking, however, keep us from greeting gharial and gander as cousin-sister and cousin-brother. Nonetheless, shared adversity makes bedfellows: can those who need wood, fodder, thatch and forest products with a desperate day to day ungency make any common cause with those who advocate, lobby and legislate on behalf of parks and preserves for wild animals?

The initial rationale for South Asia's network of conservation sites and programs--as elsewhere in the world--was to protect a limited number of large animals--usually the same animals that in the earlier era had been targeted as "big game"--from extinction. Backstopped by expert advice from international agencies such as the FAO, then UNDP, then the United Nations Environmental Programme, as well as private organizations like the International Union for the Conservation of Nature and Natural Resources (IUCN), regional governments have for the most part succeeded in stabilizing these major species and maintaining reproduction under field conditions rather than having to resort to zoo conditions. But in the last decade, just as the fruits of this great labor on behalf of tigers, elephants, crocodiles, etc., has come to succeed, an alternative and much broader conservation agenda has emerged: to conserve forever all the species--birds, insects, fish, plants, mosses--within carefully defined ecosystems. This "biosphere reserve" approach reflects scientific preoccupation with issues of biodiversity and bioproductivity and lends itself to aloof research methods such as remote sensing of forest cover, fire activity, etc. While

this approach to conservation seemed at first destined to push the species-based approach aside as old-fashioned, the present position is that

> Ecosystems are made up of individual species and ultimately it is only through monitoring species that we can tell if ecosystems are healthy or not. . . . (Further) only by tackling conservation at the species level can we adress the azonal and non-habitat related threats of hunting, poaching, levels of utilisation, competition with domestic animals, indirect impact of other human developments, pollution and other factors affecting the status of wildlife in the (Indo-Malaysian) realm. (MacKinnon and MacKinnon 1986: xi)

In other words, a species-based approach to ecosystem assessment plunges the analyst inb real-world, on-the-ground problems of local pressures by often hungry, needy and desperate peasant claimants who have, from the point of view of park/preserve conservation, some very bad habits. The prime species, the cherished species of animals, are in the park/preserve enclave, but "azonal" and "non-habitat related" behaviors by humans at the edge of the enclave are now inside the conservationists' research focus. What this suggests is that the rapprochement, if that's what it is to be, between humans and wild animals will occur in the fields and villages that immediately surround India's and Nepal's and Pakistan's premier conservation areas. It is there that "wildness" persists to be a problem for villagers and where villagers persist as a problem for wildlife managers.

"Project Tiger," India's network of 15 preserves carefully distributed around the nation in distinct ecological zones and with many state administrations responsible for their managemnt, is widely acknowledged to be the most ambitious and successful national conservation program in South Asia. To save the tiger it was necessary to save the habitat, and saving the habitat--or 11 habitats--also saved hundreds of other species from destruction. Project Tiger conducts an annual census; in 1972 there were 1,800 tigers and in 1986 4,015 (Israel and Sinclair 1978: 67,73). Most people know this curve in general. What is less well known, altho gh by no means hidden, is that the growth of tiger populations in two parks--

Corbett and Dudhawa, both in U.P in the Indian terai--began to exceed the parks' carrying capacity about the beginning of 1978 (Bedi and Bedi 1984: 64-79). Subsequently the same happened in Royal Chitwan Park in the Nepal terai (B.N. Upreti, private communication). The principal evidence that the limits had been reached was that tigers began to attack and eat subordinate park staff and nearby villagers. Bedi, who was present off and on during the difficult years 1978-81 at Dudhawa, has left a clear impression that conservationist staff were completely unprepared for this development; their orientation and training emphasized scarcity and survival, whereas the demographic reality was too many tigers crowded into impossibly small average ranges--and being provoked by villagers entering the park clandestinely to cut grass. Despite the obvious temptation to resort to the method of the eponymous Corbett, the park rangers ruled out shooting the first few man-eaters, hoping to rehabilitate them by relocation and diet; while these curious experiments went on, more than 100 persons were killed. A complication was that these man-eaters moved out of the park and roamed through the surrounding district of Lakshimpur-Kheri, moving under cover over long distances. At last a policy of extermination was invoked.

> The district was infested with tigers relishing human flesh. No one seemed to be safe. As soon as one man-eater was killed another tiger would soon replace it. . . . . Hardly had the sansis settled down with relief when a fresh wave of panic and terror spread through them. . . Sometime as many as five man-eaters take their toll of human lives. It is like an epidemic . . . .

The conservationist approach of caging the tigers, however, was never definitively abandoned, and releasing so that a confused series of episodes in different social settings and institutional frameworks occurred:

> Baits were provided regularly and the man-eaters started taking them. But the experiment suffered a set-back. It was possible to control the movements of local people inside the park; but the reserved forest outside the park, where grazing and a limited number of felling of trees are permitted, continued to attract the villagers. . . . People ignored the warnings of the officials attempting reformation of the

> killer tigers; and, after every (human) kill, the pressure to eliminate the offenders rose to such heights that it became a problem for conservationists . . . . Local political leaders deprecated the critical situation and fanned the agitation for getting compensation from the government. They pressed for the arrest of officials, whom they accused of being heartless. In one of the public meetings they incited the people to promise that they would tie up the forest guards and put them up as bait for the man-eaters . . . . It was a golden opportunity for the big farmers to demand the lifting of the ban on big-game hunting. They said they were unable to harvest the sugarcane crop because of the active marauders in the fields . The cold hard fact was that they were unable to find a market for the bumper crop that had already flooded the markets. (Bedi and Bedi 1984: 78)

Conservation had reinvented the man-eating tiger; but under the new post-Independence conditions the solution was not so obvious: no tiger-slayer from Sambalpur could be called, no Jim Corbett. No burning sadhu would do. Instead the old, old threat was played through the new, new lenses: press, legislature, party. Whether one advocated killing or sparing a convicted man-eater became an indication of how one felt about the practice of officially recognizing parts of nature as good and worth making sacrifices for.

Gazetteer of Coorg. G. Richter, comp. (1870); reprint edtn. 1984.

Statistical Account of Bengal. William W. Hunter, comp. (1875-77); reprint edtn. 1976.

NOTES

1 With grateful thanks to Tom Frolick and John Gardner.

2 With apologies to Bina Agarwal, Ramachandra Guha, Ashish Nandy, Vandana Shiva and others.

3 Professional hunters whose experience spans both sides of Independence are unanimous about the disastrous effects of over-hunting since 1950. For example, Jim Corbett writes that "pressure of population has brought under cultivation large areas in which in my time game wandered at will," Jungle Lore (London: Oxford, 1953), p. 54, while Kenneth Anderson shares the same thought: "Many places that once teemed with game and resounded to their joyful and melodious voices are now realms of silence. Before this unique heritage becomes altogether a thing of the past, it is the duty of the Government, and more particularly every Indian, to put an end to the wanton slaughter that still goes on, night after night and every day of the year," The Call of the Man-Eater (Philadelphia and New York: Chilton Books, 1961), p. 11. Burton, writing on "The History of Shikar in India," was extremely discouraged about the lack of "public opinion" in favor of conservation, observing that "deer and other wild creatures are just lumps of meat and catchers of votes." Journal of the Bombay Natural History Society 50 (1952): 862.

4 Hunter does not include his questionnaire in the Statistical Account, but the questions are easily determined from reading through the published responses.

5 Data are not complete for all 40 districts.

6 Note for example the agreement between Anderson, based in South India, and Corbett, based in the far north about this matter: "The Man-Eating Tiger is an abnormality, for under normal circumstances, the King of the Indian jungles is a gentleman and of noble nature" (Kenneth Anderson, Nine Man-Eaters and One Rogue. New york: E.P. Dutton, 1955.), p. 7. These stories set in Salem district of Andhra and in Karnataka. Corbett: "There is, however, one point on which I am convinced that all sportsmen--no matter whether their point of view has been platform or a tree, the back of an elephant, or their own feet--will agree with me, and that is, that the tiger is a large-hearted gentleman with boundless courage . . . ." (Jim Corbett,Man-Eaters of India. [Orig. edtn. 1944.] New York: Oxford University Press, 1957), p. xii. These stories are set in Kumaon and Gahrwal.

7 Elsewhere Anderson observes that "It was soon apparent that I would get little or no cooperation from the villagers, many of whom openly stated that if they dared to assist me the shaitan would come to hear of it and would hasten their end. Indeed, they spoke in whispers as if afraid that loud talking would be overhead by the panther [leopard], who would single them out for revenge." Anderson, 1955: 38; see

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also 121ff.

8 "In Gahrwal kills by man-eaters are attributed to sadhus, and in the Naini Tal and Almora districts all such kills are attributed to Bokhsars (a tribe inhabiting the unhealthy belt of grass at the foot of the hills called the Terai, who live chiefly on game)." Corbett 1957: "Rudraprayag," 22-23.

9 Hunter, Statistical Account of Bengal, vol. 1, 24-Parganas and Sunderbans. Tiger fakirs are discussed further in Greenough, "Hunter's Drowned Land: Victorian Science on the East Indian Frontier," mss.

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HOUSEHOLD SURVIVAL THROUGH COMMONS: PERFORMANCE IN AN UNCERTAIN WORLD

By

Anil K. Gupta

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Household Survival through Commons: :Performance in an uncertain world[1]

Anil K Gupta[2]

The search for ethically responsible and scientifically precise alternatives for socially disadvantaged groups in high risk environments requires a multi disciplinary, multi market/multi institutional approach. Various groups of rural households diversify portfolios of their economic enterprises within a range defined by the ecological endowments .The access to factor and product markets, kinship networks, intra and inter household risk adjustments, public and private relief systems and finally common property resources or common pool institutions determine the composition and evolution of portfolios of different enterprises (Gupta,1981,1984,1985).There have been some studies on the role of commons in risk minimization strategies vis-a-vis private and open access resources (Gupta 1982 , 1985 , McKean 1985, Biswajit 1983, Jodha 1985, Agarwal 1990 ,Gupta and Ura 1990, Braden 1985, Buzdar ,1988 etc.). A coherent theoretical framework however, remains to be developed which situates survival through resources governed by different property right arrangements.

The Austrian School has rightly questioned the dilemma of pricing resources according to equilibrium outcome or utility consideration (Buchanan ,1982). Human decisions are considered to be spontaneous, creative and dynamically subjective (Kirzner 1982). The theory of Chaos provides a way of dealing with apparent randomness in the behavior of natural and social phenomena by looking for the order at different levels. A world view in which synchronization or simultaneity rather than sequential or causal chain reaction explains human choices is characteristic of eastern societies (Peat ,1987) . The search for sustainable development by definition was pursued along very different criteria in societies that have a history of thousand of years compared to other societies which, may have much shorter history .

Sustainability of using natural resources in an uncertain world in which disadvantaged households may have control over very few institutions, requires

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understanding of cultural boundaries of consciousness . The understanding of emic rules over etic rules requires distinguishing cultural and value codes . Tolerance of good turns with bad ones sometimes in a random order has become an integral part of survival ethic in peasant societies. Study of institutions that generated this ethic becomes a necessary part of understanding the portfolio adjustments under risk and uncertainty .

The evolution of survival ethic is facilitated by different cultural, religious and other social mechanisms. Different types of rules emerge to deal with multiple human objectives. Management of risks is sometimes like a game of musical chair or snake and ladder (Gupta,1987). Randomization to deal with uncertainties , as we shall see later, has been an ancient way of dealing with the problem of sustainable resource use . In fact there are examples where certain tribes converted a problem of risk into uncertainty just in order to use the rule of randomization in resources use and there by prevent excessive exploitation of the natural resource(Gerlach and Palmer, 1981). But, these patterns emerged not just in the parameters of evaluating and managing resources but also in determining the outcome of playful performance (Richards 1989).The adjustment with risks , the contention here is , does not require meeting just the needs of survival but also of fun , liveliness and synchronicity (i.e. doing things together irrespective of what and why).
Performance of a music concert or a drama requires a coordinated simultaneous act involving actors and "audience" with the message being always different though the concern, pedagogy and instrumentalities remain same or similar. The rules of performance can not be derived by aggregating the rules of drama or music . These rules can be understood by looking at the basket of preferences (ranging from aesthetic ,spiritual to material and political) that social groups have. Thus same performance need not click with all types of audiences .A technically imperfect musical performance may some time leave a more lasting impression on the audience than a technically perfect performance but unable to move the audience. The perfect performance is predictable. The error is not. Even less is the way the error is corrected. Thus the fun.

How does this metaphor help us in seeing the working of social institutions in action in high risk environments? . In case of Bhutan , a Buddhist society , a butcher (of game and domestic animals) and a consumer of meat (compelled by the environmental compulsions of say a mountain region) become part of the same moral persona and enact a role which by any other logic is difficult to comprehend . The killer of animals is held in lower esteem but not the eater. The killing is still a taboo (Gupta and Ura ,1990). We thus begin to see the way performance of normative roles without generating guilt generates a logic of day to day living . Conservation ethic is quite compatible with such 'corridors' of convenience or compartmentalization of logic. Pursuit of rationality from narrow economic perspective often masks the overlapping layers of consciousness held in common by the peasant societies.

We provide a discussion on risk, resources ,skills , rights and collective responsibility in part one of the paper .

We draw upon the eco-sociological frame work for analysing the household adjustment with risks and the role played by commons in it in second part . We also look at the interactions between the access , assurances, abilities and attitudes with ecological resources , institutions ,technology and culture in an eco-institutional frame work. This provides two levels of analysis of

household choices,vis-a-vis resources managed under different property regimes.

One, the interaction of access to and assurances from commons vis-a-vis resources under private, open access and public control .

Second, the analysis of rules, rituals and rational order is attempted in the context of randomization and/or portfolio adjustments over, space, time and sector.

The theory of playful[3] portfolios to deal with risks and commons implies a multi level, multi market and multi institutional analysis of the household choices. The purpose, it is suggested, is not to understand in a reductionist frame work how the rules and roles of different actors in a performance are obtained. Instead the purpose is to understand the playfulness that underlies human inventiveness while dealing with a performance in which a sum is not only more than the parts but is also distinguishable from other sums of the same parts.

The policy implications are drawn not for generating prototype institutions for managing common property resources, but working towards a political order and Eco-institutional framework in which the order can only be seen at a particular level of analysis by providing conditions conducive to playfulness. Or alternatively, the pattern of that order changes from one level to another. There arise multiple rationalities. The limits of rationality defined by the causal chain mechanisms have to be recognized if order at a higher level of consciousness and social purpose of life has to be discovered in the holistic or organic worldview.

The paper emphasizes need for departure from single resource, single institution, single level analysis (for multilevel analysis, also see Ostrom, Picht and Feeny 1988). The paper is organized in three parts. In part one a brief review of literature is presented to understand the relationship between risk, resources, skills, vis-a-vis private, public and common resource markets providing ingredients of individual and collective portfolios. In part two, we discuss the three stage analysis of risks, adjustments, institutional emergence and portfolio diversification vis-a-vis common property institutions. In part three, we list the questions which need to be pursued further.

PART ONE

Risk, Resources, Skills, Rights and Collective Responsibility:

The role of risk in emergence of institutions to manage common pool resources or properties has not received adequate attention . For instance a recent state -of-art review on institutions by Ostrom,Picht and Feeny (1988) had only one index entry and a couple of pages on the subject. Societies have evolved many 'rational' and apparently not so rational ways of making sense of the

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3. The word playful refers to those dimensions of human survival which are not amenable to analysis by conventional categories of 'rationality'. The fun and joy are as much legitimate part and purpose of the pursuits as are search for food and shelter. It is true that food has priority but it does not eliminate simultaneous attempts to make search for food a varied experience. The creation of variety is what we refer as playfulness.

uncertainties which can not ,by definition, be predicted. Adjusting and adapting with risks requires not merely resources but also skills (economic,cultural and political). The skills and resources are by themselves insufficient if assurances are not available about (a) using resources now or in future (for instance the insecurity about tenure or availability of land on lease next year), or (b) others' behaviour vis-a-vis one's own (will others also not graze their animals on the commons if one did not) , or (c) the effect of ones's action on the environment (Gupta ,1985).

Gardner (1985) recalled the confession by Buchanan (1982) that there are aspects of human action that cannot be subjected to explanation in an operationally meaningful theory of economics[4].

The creative and spontaneous element of decision making (Kirzner 1982) requires markets and property rights to be treated as a part of indigenous institutions. Each human actor is believed to be an 'entrepreneur, speculator, and acting man' who makes changes regarding future. The endowments, preferences and technology are believed to be generally known to everyone. Instead, Gardener asserts "each individual has his own particular subset of knowledge. This produces a local knowledge monopoly, but the very act of using that knowledge tends to breakdown the monopoly by diffusing the knowledge on which it is based" (1985; 1041). In this framework the existence of local experts is less well recognised. The kohlis (local managers of water streams in the hills), or indigenous healers of animals and human beings, expert hunters etc.,may generate knowledge monopolies which do not breakdown because this knowledge is often used for common good.

Hudson(1980) looks at the unpredictability in human choices differently. He refers to the turning points or what he calls as 'successful / failed watersheds ' as enigmatic or intriguing moments when people rush into actions which one would find it difficult to explain by conventional 'standpoint of statistical social modeling'.. One of the problems with traditional forecasting methods was that these were based on "surprise - free" dimension. History in fact is interesting because there are surprises.

He adds:

> People are interesting because their behaviour can depart from normal patterns as well as conform to them. And theories are interesting because they provide a cohesive way of viewing highly diverse phenomena, sharpening the edge of other theories by clarifying the conditions under which different models of behaviour prevail (1980:26).

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4. Gardener further observes (1985:1042) :

> In this Austrian world, the property rights system will largely determine incentives for innovation and enterpreneurial activity (Demsetz),the ability to internalise externalities (Coase), the location of knowledge most likely to yield productive innovation (Pejovich), the appropriability of the return to an innovation (Pejovich), the impact of monitoring labour and managerial performance on technological choice and productivity (Alchian and Demsetz) and the distribution of shared cost and shared benefits (Milenkovitch).

> The importance given to prices in this framework for uncovering human choices may not be entirely well placed but the consideration of institutions as endogenous variable is indeed an useful advance.

He uses binomial model to analyze the trade off between success and failure under risk and argues that redundant resource does not always add to the safety margin of a social system. He shows that additional resources do not necessarily provide greater insurance against risk.

He adds "there is a natural human impulse to add redundancy to systems that are subject to failure. Yet catastrophic events can often be traced to failure in a series of safety systems-in the crash of a wide body jet due to a patchwork correction of faulty cargo door design, in the combination of malfunctions and errors leading to nuclear plant accidents, in the breakdown of warning devices that should have prevented train and ship collisions. At first glance, one might say, "Let's correct the problem by adding more warning and backstopping devices". But the binomial model tells us something else: that sometime redundant safety features do not help. And when they don't, they can actually increase the danger of catastrophic breakdown. The system comes to rely on the additional features, when in fact they may be no more reliable than the average of components already installed. (1980:22).

He decries the tendencies of solving problems by adding new system components which may themselves be prone to failure. The same additional resource can cause greater risk in some cases and adds security in other cases depending upon the probability of failure of each component, number of components and proportion of the number of the components which are needed at any particular point of time. Thus, he "adds if a person is walking a thin edge between success and failure, it will often pay to drop out of conventional forms of social and economic participation". When the system is relatively intolerant of failure one may have to let go several risk taking activities at once. Same logical applies to the addition of spheres of opportunities; "it pays to increase them in lumps, because more often than not the addition of a single new element constitutes a liability rather than extra safety margin. For people who are socially disadvantaged, participating in very few spheres of social opportunities, having lack of influence to get a second chance if they fail once and having high probability of failure in any given sphere of opportunity becomes a way of life[5].

It is for this reason,Hudson observes:

> When disadvantaged people drop out of the social and economic mainstream, they are often judged irrational, because specific opportunities for self-advancement can almost always be identified. What the binomial model suggests, however, is that spheres of opportunity may have to be clustered and offered in a comprehensive package to improve a person's net chances for overall success. Added one at a time, such opportunities can easily constitute a "pure liability". as seen in the case of redundant airplane engines.

It is in this context that one has to understand why disadvantaged people choose a portfolio with fewer components likely to fail. The social policies, Hudson notes, are typically directed to reducing the prospects of failure in

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5 Mark Baker informs that Prof Todd I La Porte at University of California, Berkeley has also discovered that when one analyses the behaviour of say air traffic controllers under conditions of high damage costs of failure behave differently from what one would expect theory to predict.

various spheres of social opportunities. The binomial model draws attention to another factor and which is the tolerance that society has for failure in a specific spheres of individual performances. "A small failure of generally little consequence can occur at a threshold of tolerance with results for out of line with the average effects of the precipitating events".

The theory of chaos (Prigogine and Stengers, 1984) and Hudson's propositions explain how " A straw can break the camel's back".

While dealing with risks, Richards (1989) shows how in the harsh environmental and economic conditions faced by many poor families in the tropics, "even to reproduce the status quo is often a brilliantly innovative achievement". He shows that many times technical perfection in a musical performance may not move the audience, whereas technically imperfect performance could be greatly appreciated. Referring to Stones (1982), he highlights how performance as a metaphor implies sensitivity "to, the timing, turn taking, how to begin and end, how to cue, enters and exits, how to cope with mistakes and broader notions of harmony, togetherness and the social and spiritual auspices under which music takes place". (1989:42). Similar skills may have to be shown by a yak herders or cattle herders trying to coordinate their movements across altitudes, seasons, pastures, etc.

Literature on common property resources has generally ignored the implications of clustering of opportunities, redundancy of rules, and inappropriateness of segmented analysis of survival options of disadvantaged households.

While dealing with various strategies of risk adjustments used by Peruvian peasants Guillet (1981) shows the inter linkages between upland and low land, crop and livestock variability among micro eco zones, differentiation along vertical and horizontal coordinates of mountains. One of the interesting dimensions that he highlights is what he calls as "polyvalency" - a mechanism for reducing risk based on the need to control variability across sectors of the economy. Thus, a clustering of migration, livestock, crop, animal breeding, craft and several other activities have been termed by Feder (1971) as a means of spreading risks across space and sectors. This is similar to what Hudson had suggested earlier as clustering of spheres of opportunities or what we have called as portfolio of enterprises, opportunities and strategies (Gupta (a) 1984,(b) 1985). Creation of social relations and networks (Gupta 1984, Box 1988, Richards 1985) or means for obtaining information, resources, incentives for dealing with risks singly, jointly in different resource markets. Guillet (1981) compares the investment portfolio of peasants with that of professionals like us. The portfolio dimensions brings in the complexity but also a greater order in the perspective on household survival under risk by manipulating access to private and public common resources.

Reviewing lessons from various attempts to manage risks, Clark (1980) observed that uncertainty or variability in the natural system was initially seen as a source of risk/hazard. Without exception assumption was that removal of variability would be an unmitigated good such that risk would be reduced and performance improved. However, the experience showed,

> The decreased frequency of variation in the system was accompanied by increased vulnerability to and cost of variation when it finally broke lose from managerial controls. The management efforts had changed the kinds of risks encountered, but not the fact of risk. More often than

> not, management shifted the risk structure from a sort people were accustomed to dealing with to one they had never before experienced(1980:7).[6]

He underlines that merely an increase in knowledge or control is unlikely to reduce unpleasant surprises (or unanticipated consequences) in resource management. He suggests need for learning to design such resource management system that can better cope with failure (and incorporate new information generated by "errors") guaranteed by our ignorance and inherent variability of resource use systems. The suggestion for uncertainty tolerant management system is similar to what Weick (1977) called self designing system , or Argyris (1980) calls double-loop learning systems.

Clark observes:

> If knowledge is incomplete, if the future is uncertain, then mistakes and surprise are inevitable. The categorical imperative is to recognize such mistakes, to learn from them, and to modify future actions accordingly (1980:13).

The retrospective rationality is after all not all that bad. It helps generate psychological satisfaction in the wake of material and cultural dissatisfaction. The purpose of institutions is not just to provide a rule book for managing a set of resources. Often one set of rules may be nested in another type of institutions. Institutions provide an arena of discourse, performance and catharsis. These also help in anticipating the range of others' behaviour.

Braden (1985) recognizes that individuals who are dependent upon others for using a resource do look for assurances about others' behaviour. The restraint, he adds,

> will be exercised voluntarily only if the future is not discounted so heavily that the short term gains of defection out weigh long term gains possible from conditional cooperation by a critical mass of participants. A positive prospect that others may reciprocate provides a favourable incentive for voluntary restraint, but these fall rapidly as the number of participants increases or discount rate increases.[7]

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6. Baker while commenting on this draft wondered whether one could generalise that ' removing /reducing vulnerability to frequent disturbances of low magnitude increases vulnerability to less frequent disturbances of high magnitude'. The homeostasis could be positive as well as negative (Gupta,1981). A household could continualy adapt to lesser and lesser level of subsistence within physiological limits. Sustained deprivation can desensitise a person or even a community. Hence the need for provocations, mild pains and strife. In ayurvedic system and eastern philosophy a great emphasis is placed on frequent fasts and other forms of mild self inflicted pain. It must have been recognised by our forefathers that removing vulnerability to such small pains may indeed increase vulnerability to large pains. For studies on commons, one should recognise the need for such rules which perform same function. Courting pains of small magnitude may be an inherent feature of traditional resource management system.

7. The discount rate may vary depending upon several factors(Gupta, 1981,1984) such as: the control a household has over resources and information in a particular resource market, the past experience (both immediate past and long past), successive gains or losses in previous experiences of resource use, expectation profile(time frame), clustering of contingencies over time and space (marriage of daughter after five years, sending of son to college for higher education, treatment of father for heart ailment etc.,), kinship support network and various intra and inter household risk adjustments (discussed herein later) etc.

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The studies on collective behaviour have emphasized primarily the variables which deal with either group size, monitoring, frequency of interactions, nature of reciprocity, the choice of discount rate, the extent of tolerance by the group of free riding , the ratio of return that an individual gets as a fraction of total group gain or loss, cost of preventing free riding vis-a-vis the loss due to free riding as a part of total group gain etc. However, most of these interactions have been pursued primarily in a single resource market, say, fisheries, forestry or grazing, etc. While the need for multi level on multi market approach has been recognised (Gupta 1985 in Ostrom, Picht and Feeny 1988) the framework still looks at the rules that cover behaviour in segmented resource markets.

Survival of Commons under Stress

I have earlier shown that a common property resource may be managed better in a high risk environment not because it was needed less but because it might have provided only a small share of the total livelihood requirements of a sizable group of the households (Gupta,1985) .

To illustrate let us assume there is a village having three groups of households. Group-one owns primarily cattle , land and receives income from inward remittances (from people employed elsewhere) . Group-two owns cattle and sheep , some land , family members are engaged in crop related activities and labour on others farm , public employment works etc. Group-three has primarily landless people or marginal producers having very small land holding if at all , owns primarily sheep , gets majority of the income from labour , also pursues crafts and lives in separate settlements outside the main village due to caste and other social factors.

The portfolio of activities of each group is different and so is different their respective vulnerability. The proportion of biomass they get from commons as a function of total biomass requirement will also vary. However, the attitude towards commons would not be judged merely by the access and the assurances available about future returns from present investment and others behaviour vis-a-vis one's own , or the skills or abilities of groups to convert resources into investments . The attitude will also be governed by the timing of the availability of biomass from commons and difference between the threshold quantity of biomass necessary for survival during the lean period and the total biomass available from the commons during this period . The threshold value will be determined differently for different groups depending upon the availability of biomass from private or other open access resources.

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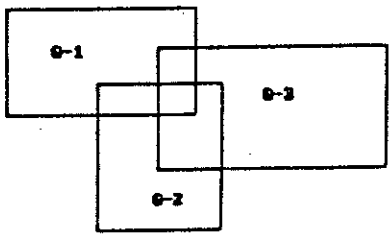
The catchment area from which group one, two and three draw their biomass would also be different.



Catchment of Biomass for a pastoral community comprising three Groups

The group three would migrate to much longer distances than group one due to technological reasons (sheep dominant portfolios) and differential access to private resources. The domain from which they will draw the biomass may overlap partly. Thus group one and group three may supply restraint or forbearance towards commons for very different reasons. In both the cases the critical resource availability over time may not be synchronized. In case of group three the vulnerability is high and therefore, dependence on a resource regime (in this case CPR) which provides only marginal share of requirement is low (unless amount generated from CPR is equal to the threshold value minus biomass available from other sources and timing is appropriate). In the first case the vulnerability is low and the dependence is also low. In case of group two the dependence may lie somewhere in between.

Even though the environmental risk and uncertainty may be same for all the three groups, their response to commons would be influenced by the importance that CPR has in their portfolio besides other background factors influencing their attitude and expectations.

In case of group one, the inward remittances may reduce the vulnerability by providing a regular flow of income and thus change the bidding behaviour vis-a-vis commons. The cultural congruence between different groups would act as a background variable in so far as the criticality of availability of biomass from CPR is concerned. In a drought year everybody may decide to be indifferent to the commons because the biomass may not meet more than a few days need of the three groups. Alternatively, group three and group two may migrate out leaving behind group one to use the CPR resources in the lean season. There is a possibility that group one may decide not to violate the sanctity of commons either because of religious reasons or respect for future availability of resource to the other groups as well as to the members of the same group. In either case there could be several variations in dealing with risks and institutions may emerge to regulate cultural, economic, psychological, and social expectations of people from each other within the groups as well between groups.

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We have come across instances where village leaders may decide to auction the commons to the highest bidder even though there may be reservations for group three type of people belonging to lower caste. The argument may be that bid price offered by the group three would be very low and therefore collective income of the village would come down. In case the collective income is invested for such common properties which are used by everybody equitably, the inequity of the auction mechanism may be tolerated. On the other hand, if the common good created serves only some groups more than others there may be resistance. The degree of resistance would of course vary depending upon the extent of inequity and intra-group solidarity. There are examples where experience of very strong conflict between groups one and three have led to the emergence of very high solidarity in group three for managing a group based common pool institution (Pastakia, 1990).

There are also examples where the group one dominating the local level panchayat (quasi legal administrative authority elected by village members) may hand over the commons to forest departments or other public authorities for its closure and the regeneration.

In the process group one ensures that group three would lose access to the CPR in the short term . When the resource regeneration has taken place, the usufruct may be disposed off in market. And the surplus so generated may be used for creating a public or common good in the village which may or may not be of much use to group three. The group three may lose access in the long term also. The group one and group two may collude because of economic and social reasons. In some cases on caste and cultural considerations group two may also align with group three. The commons may survive without necessarily any gain in the livelihoods prospect of the group three.

Risk and redundancy

We have argued that probability of an institution generating cooperative behaviour may depend upon, among others, at least three factors: a) The proportion of value added by the institution invested in risk and guarantee funds , b) The proportion invested on diversification of use of common resource or value added product , and c) the extent of transfer pricing[8] being followed by the group members. It is obvious that further distribution of risk fund or diversified resources among various poolers would further influence the emergence of cooperative behavior (Gupta 1984,1985).The degree of redundancy generated may also influence, as mentioned earlier , the incentives for cooperation among various groups having different portfolios.

The redundant resource will insure the portfolios of different groups differently depending upon the importance of the redundant resources in the respec-

8. The concept of transfer pricing implies that same resource is made available to different claimants or users at different prices such that in real effect the resources are transferred from those who pay more to those who pay less. The theory of tax and tariff differential depends upon this concept as does the concept of social welfare. Unfortunately many of the cooperatives designed on the basis of European model do not discriminate among members though they do among members and non members. For instance in Amul cooperatives, a harijan landless non member pays more for the same service say medical help for his/her animals than a member big or small farmer.

varieties of rice though with very low return are grown because they are required for certain rituals and religious occasions or an old cow is not culled due to religious taboo on cow slaughter) and (c) provides opportunity for renewing certain skills which otherwise may get lost or weakened[9].

The trade off between redundancy in resource use to deal with future uncertainties vis-a-vis optimal scarcity leading to emergence of rules for regulating present resource use has to be made very carefully. Too much of redundancy may confuse and too little may cripple (Gupta1985). Sometimes scarcity in resource use is compensated by redundancy in cultural or psychological sub set of living[10]. Some times the regulation of CPR is done through regulation of managing private resource. Gills and Gamtgard (1981) provided an example of regulating private resource to protect the commons. In other words scarcity in one sub system can influence sufficiency in other systems. In addition to redundancy, randomization has also been used for regulating collective behaviour for managing commons.

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9. Examples of this kind could be certain rituals like collecting fuel from the forest on a particular day even though people may have sufficient private stock of fuel at that time Or tending a cow which gives very low amount of milk but its quality is supposed to be very good for children Going for hunting more for fun than real gain because the skill would be lost otherwise. It is possible that the fun and frolic also are added on to such tasks or ventures

10 In Bhutan there has been a custom of people going into retreats in monastries where if the person concerned does not have the resources to subsist, somebody else can sponsor his or her retreat and pay for it(and earn 'punya' i.e good deed). The cultural surplus compensated here the scarcity of resource

An interesting case is provided by a lambada(migrating community originally hailing from Rajasthan) women song from Karnataka:

> A women sang a song which had following meaning In a drought year a women is coming back from the field after finding out whatever grains she could On the way she meets a parrot The parrot starts staring at her She asked the parrot as to why was he looking at her so intently The parrot told, he was actually confused after looking at the women's neecklace Parrot mistook a green agate stone in her neckalce to be a grain. Only when woman came close he realised that it was a stone Woman asked him, had he not got anything for eating The parrot replied that hadn't she brought all the grains from the field even the ones which had fallen on ground. The women realised that parrot was hungry, and she also needed the grains very badly for her children She asked the parrot to come home with her and share whatever she gave to her children. But the parrot flew away leaving her dumb founded
>
> A knowledge system which generates concern for various part of eco-system obviously could not have evolved through just the individual innovation It would have required evolution of cultural norms, folk lores cemented by various kinds of sanctions and rewards for socially approved behaviour.
>
> In another case in Rajasthan a villae panchayat (assembly of elderman) devised a unique way of punishing person who cut some branches of trees from common land where such poaching was prohibited The person ~~was caught~~ was asked to stand barefooted under open sun in the hot summer and feed the birds from morning to evening (Aggrawal, 1990, personal communication). It may be difficult to establish relationship between cutting of tree branches, reduction of bird arrival, increases in the pest attack or decrease in the bio-diversity because of lack of seeds brought by the birds and the feedings of the birds This relationships is entirely hypothesised by the author. It is quite possible that this punishment would have been interpreted differently by different in the village with some commos meaning but some uncommon meaning. On one hand the culprit was punished on the other hand he was supposed to have been blessed by the Gods for having fed the birds in such an hot environment standing barefoot

Risk , redundancy and randomization

In a paper on 'Musical Chairs, Snake and Ladder and Management of Risks'[11], I asked a question as to why did children all over the world (particularly the developing world) play games that involved development of randomization skills. How did one contrast evolution of this skill in the process of evolving human consciousness in past with the trend towards development of strategic choice or only-one-best solution games in the developed world or metropolitan cultures in developing world. Does it provide some clue to the increasing tendency of dealing with nature through control rather than spirit of coexistence? With the increase in individualization of risk assessment and response the collective choice options even if more sustainable seemed to have been ignored (assumption here is that collective choice would accommodate the use of randomization or other such rules to either constrain the use of resource or its distribution which is unlikely to be the case with individual rationality) . Legitimacy to this ignorance was provided by an ethics which justified the precedence of individual survival over collective survival as suggested in the dominant philosophy of triage.

McKean (1985) provides an example from Japan where grass bundles were tied and allotted randomly to the people harvesting it from the commons so that no one tried to make too large a bundle for one's own use. Gupta and Ura (1990) found that in some mountain villages people drew the turn for getting water for irrigation from a mountain stream by drawing lotteries. Gerlach and Palmer (1981) provide an instance of a tribe in Africa which had a water point near a settlement. The tribe knew the time when the animals would come to drink the water . The rationale response in the short run might be to hunt the animals when they came for drinking water with the assumption that animals might not learn. And they may continue to come at the same time. Or even if animals learnt and started randomizing their arrivals the tribe could fix turn of various members and kill the animals without much uncertainty. However, the tribe did not follow any of these alternatives. The leader of the tribe threw a stone tied to a sling after rotating it for a while. The tribe went for hunting in whichever direction the stone was thrown. This may even be just opposite to the direction where animals might be found much more. By randomizing the search the extent of damage to the ecological system was minimized. And at the same time the group learned to live with heavy catch on some days with no catch on other days. The ethics of concern for ecological balance and cultural code generating happiness over failure due to fun and success due to gain was an important key to understand emergence of randomization as a rule for resource management in such contexts[12].

Strategic Diversification for Survival of Commons

Lest an impression is created that I am emphasizing the role of randomization over strategic resource planning under all conditions , let me state cases

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11. Paper presented in a seminar at University of Munich, Germany, July 1987

12 Elinor Ostrom provided an interesting example of use of randomization principle. Apparently the police in New York was face with a problem of following such a routine of sigh patrol that the criminals could not anticipate them. They devised a simple way. At the end of each street they would toss acoin and depending upon the turn decide whether to go left, right or return.

where ecological conditions require strategic adjustments in resource use over space, sector and time.

Buzdar (1988) provides explanation of multi enterprise, multi resource or eco-niche based survival strategies. The interaction between private and common resources across altitudes in North Pakistan resembles the experience in Swiss Alpines (Netting 1972) and Bhutan (Gupta & Ura, 1990). The agricultural land and animals are owned in this case individually where as water and pastures are owned collectively. No single altitudinal level or eco-niche has the potential to provide the survival needs of the villagers. All families required access to different micro environments to reduce the risk of bad years and effectively schedule resource use over time and space. no single activity was sufficient either.

The bundle of rights emerged to manage properties under various regimes or rules. It has been shown that individual strand of this bundle may be distributed among state, owners, users, creditors, labourers etc.,(Ciriacy-Wantrup 1963).

Buzdar provides examples of coordination among various pastoralists who must regulate the entry and exit in the village such that presence of the animals coincide with the fallowing of the fields. This in turn requires that individual cultivators grow crops which mature in the same time. The fines are imposed for keeping animals longer in the village or brining them back early. Aggarwal (1990) observed a similar practice in Bunakha village of Bhutan.
Cooperation and diversification

Bromley (1985) describes a matrix of positive reciprocity, altruism, free rider and negative reciprocity to explain incentives for cooperation in a group. However, the framework needs improvement to deal with multi-market multi institutional exchanges.

Questions have been raised about the factors which guaranteed that an institution once evolved continue to play the role of coordination, provision of information and determination of pooling and distribution rules (Biswajit 1983). Birkes (1985) argues that fisherman fish for money and not biomass. implying that their strategies for catching different fishes evolve in response to market demand for each specie . He could also have enriched the analysis by looking at the portfolios of fisherman going for high value low quantity species vis-a-vis low value high quantity species. The co-variance or contra-variance of quantity, value and risk involved in fisheries vis-a-vis other investment opportunities may have to be looked into to further understand the response to commons. McCay (1984) argues that they could also be a tragedy of commoners instead of just the commons. Smith (1984) asserted that CPRs were always accompanied by triage. While one may dispute this contention there is no doubt that equity proves to be elusive in the study of commons when one searches it in any one resource market. Perhaps organizing inequity (of an optimal degree?) in different resource markets or systems provided a mechanism of balancing the respective portfolios. Thus, owners of livestock may use commons more than the land owners. The latter may use livestock dung as manure or fuel much more compared to the former. Shah and Ballabh (1986) have argued that in a group action stake of each member in the resource needs to be established. We would modify it to suggest that the stake should be established in different resources. And these stakes need not follow same parameters or the rules in each resource market or system .

Sahlins (1972) had described how pooling and redistribution function could continue if some rent was extracted by the decision centre for performing this function. Something similar to what Birkes suggests as a rent for society in the form of royalty payment for fishing. The difference is that in the first case the rent accrues to individual or institution with large positive externality. In the second case the rent accrues to society through indirect taxation or direct taxation with small negative externality to individuals who pay the rent.

While studying collective action in traditional village societies, Little (1988) observed that the "patterns of ongoing reciprocity, shared values, and in-process sanctions and rewards may effectively and stably off set free rider tendency within the traditional village and permit the village to secure collective goods which would not be possible in atomized and anomic society". Perhaps one could add that even in an atomized village with some of the traditional values intact, free rider problem can be solved if generalized reciprocities dominate over the specific ones as they do in some of the mountain and desert villages in addition to other places.

The problem of 'organizing inequity' to generate generalized reciprocity can also be seen from another dimension. Diekmann (1986) found that it was difficult to explain actual choices of people by same decision principle. However, strong negative effect of group size on cooperative action was noticed. Perhaps the lineage or kinship groups help in drawing the boundary of consciousness smaller than any other boundary be it of caste or class. Thus if one organized equity within the subgroup tolerating inequity between groups or sub groups, there may be a possibility for explaining cooperative action in multi resource, multi skill communities.

Runge (1985) drawing upon the work of Amartya Sen (1967) suggests that free riding was an option but not an imperative in collective choice situations. Particularly if institutions provided opportunities of learning overtime, and gaining order and security in an uncertain world by providing assurances. The assurance problem was seen as a zone of possibility.

Brubaker (1973) suggested a golden rule of revelation. It implies, "thus it is not the desire to ride free at the expense of the group, but wish to be assured that the others will make an appropriate contribution that may constitute motivation 1973: 152). Perhaps in eastern societies the deference to others whose opinions may be given more weightage than their action may generate a similar search for assurance. There may be a bit of free rider and golden revelation in each individual though the relative share may vary. In the institutions based on the golden rule of revelation there may be under allocation of resource due to free riding. On the other hand in the institutions based on apparatus of collective compulsion there may be forced riding by individuals who are coerced into expressing non existent demand for collected good. A good may be bad, in some cases from which it is economically not feasible for an individual to exclude himself and for which compulsion may be appropriate. Two insights this dimension offers are:

(1) the potential and actual demand for different resources needs to be taken into account while analysing the incentives for cooperative action, and

(2) the rules that may coordinate behaviour of groups will vary over size, sector, space and time. The dynamism of this variance may be difficult to capture, we submit once again, if institutional rules pertaining to anyone resource such as land, labour, water, etc., are only taken into account.

Study of natural laws helps in understanding the correspondence between the ecological imperatives and social motivations. For instance, in Andes it was found that most indigenous fruits were available during rainy season (November to March) such that the dispersal of seeds would take place when water was available (Tillman, 1987). There are umpteen examples of such correspondence between the need for a resource to regenerate and evolution of social customs, resource use patterns which are collectively and individually in conformity with ecological requirements of sustainable resources. There are tribes who do not fish during the period of spawning. Further, high germ plasm variability in some of the regions having highest degree of poverty generated a cultural requirement for different types of varieties say rice or potato and tolerance of low level of returns with high variability in different varieties. The survival was ensured because there existed a contra variance in returns of different local varieties . Thus, some output was available no matter whether rainfall was too little or too much. But with declining demand for the skills of such communities or inappropriate rewards for maintaining bio-diversity, the income levels of people have declined. Once the portfolio shifts took place in favour of uniform varieties or some other enterprises, the cultural edifice supporting respect for sustainability through diversity crumbles down.

Some other ways in which the traditional societies try to manage correspondence between common and private resources are : establishing correlations between one system and another (to use proxy variables like flowering of certain shrubs or grasses to regulate decisions about beginning or ending grazing activity at a given place), generating rituals requiring respect for common properties, instituting customs or festivals which serve as reminders of individual responsibility for a collective good etc. Much of the literature on institution some how has ignored the rich tradition of cultural mechanisms available for management of commons. Stocks (1987) provides examples of cultural norms that counteract irrational tendencies of resource use. For instance, a pastoral group could evolve norms of spending most time on patches with highest rate of return or evolve norms of mobility even if resource supply did not warrant it.

Summarizing discussion in this section, we note that environmental risks are adjusted by various social groups through a combination of strategies that vary over space season, sector and social groups. We also observe that the patterns of diversification are evolved over a long period of time through trial and error and not necessarily only with the economic ends in view. The act of performing sometime is its own reward. Or to put in other words traveling together in a journey is given as much importance by the eastern societies if not more as reaching the goal. The performance orientation provides the basis or order in seemingly chaotic conditions of individual choice.

The coordination of individual choices through evolution of portfolios requires (a) understanding of risk and returns in each resource market, (b) evaluation of the returns by skills which are calibrated differently for

assessing short and long term economic and social, and individual and collective returns and (c) differential discounting of returns in times of crisis or scarcity vis-a-vis returns in normal times. The spirit of innovation supported by knowledge richness of disadvantaged groups provides better understanding of the institutional dynamics. For those who own very little private material resources the reliance on common or open access resources is inevitably higher. Their stake in the preservation of commons does not necessarily become higher on this account alone. There is a need to link the stakes of individuals in different resource markets with their expectations of returns across these markets. The supply of resource when it is most needed may make all the difference to its value just like increase in constraint even if of a small magnitude but beyond a critical limit breaks the back of the camel by a single straw.

PART TWO

Eco-Sociological Framework for Risk Adjustment:

We present the discussion on survival under risk through reliance on commons and private resources at three levels of analyses:

1. **4-S Model: Interaction between space, season, sector and social exchange (Gupta 1981,1984, 1985)**

As shown in Figure 1 each dimension of the matrix can be dichotomized in its contrasting dimensions. For instance, space can be seen in terms of low land or upland , low population density or high population density, lesser or higher slope . Likewise seasonality can be contrasted in terms of high or low rainfall, diurnal temperature variations or any other parameter of climate. The sector can be contrasted in terms of specialized or diversified portfolios, private or public, single specie versus multi specie portfolios.

Our contention is that if we know any two dimensions we can speculate about the third. Likewise, if we know the three dimensions we can speculate about the forth dimension that is nature or pattern of social exchange. If we know all the four dimensions we can then more carefully explore the type of common property institutions that may emerge to satisfy collective expectations of fair and sustainable collective behaviour.

Let us take the combination of two dimensions that is low population density and low rainfall that is high diurnal temperature variations and also high seasonal fluctuations. There is an inverse empirical relationship between the average amount of rainfall and its coefficient of variation. Thus lesser the rainfall higher is the variation over time and space. It is for this reason that communities living in such high risk environments diversify their portfolios over time , space and sector.

The sectoral portfolio would thus be diversified over time and space and gender. That is different family members would pursue either same or different occupations in different parts of the year and in different resource markets.

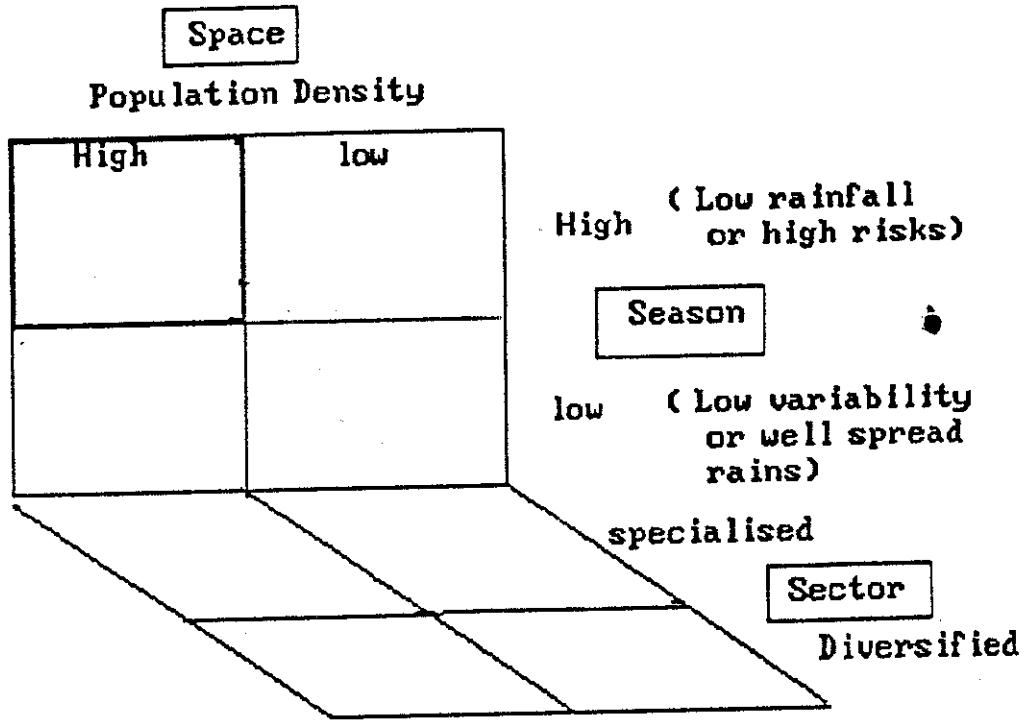


FIG 1

	ECOLOGICAL RESOURCES	TECHNOLOGY	INSTITUTIONS	CULTURE
ACCESS				
ABILITY				
ASSURANCE				
ATTITUDES				

ECO-INSTITUTIONAL MODEL
FIGURE 2

The social exchange conditions will indicate at least four major features; (a) the generalized reciprocities will dominate over the specific ones, (b) the kinship networks will dominate over the atomized households and (c) the books of accounts among family members and between households would be tallied or settled over a very long period of time as against shorter term settling in more commercialized communities and (d) dominance of 'analogical' i.e.metaphorical way of communication over 'digital' i.e.direct idiom.

The type of common property institution which may emerge here may have both episodic and continuous or concurrent rules. The episodic rules refer to directions of behaviour which become important only in the times of crisis. These are actually meta rules which provide guideline for evolving rules in such institutions. The specific rules may of course vary from crisis to crisis. These rules are not even recalled many times in the normal times. The continuous or concurrent rules refer to the ongoing directions for behaviour. Even here the equivalence of returns and fairness of distribution may first be evaluated at the level of kinship or lineage group. Only later it may be evaluated across groups and resource markets. Cross compensation or subsidization may be practiced more on moral grounds than just on economic grounds. For instance, not letting anyone go to bed hungry may implicitly be understood as a collective responsibility but only at a small neighbourhood level.

The conflict resolution may also be first attempted within the sub groups. Though the compensations may require adjustments across sectors and moral boundaries .

Aggarwal (1990) provides an interesting example of a village where the punishment for poaching in a common property was to offer grains to the birds standing barefoot under the sun. Such a logic cannot be analyzed in the classical tradition of institutional analysis. Such sanctions cannot be justified on economic ground at all. The reciprocities extend here to such claimants of resource who may not have any vote, that is, the birds. But in the process suffering in public by standing bare-foot in the sun generates a collective responsibility. It is recognised that the moral appeal may have a longer lasting effect compared to an economic tax or fine. The public display of the punishment may also generate guilt.

The institutions in the low risk-high return environment with high social atomization conditions may be more specialized with precise rules, boundaries, sanctions, and conflict resolution mechanisms. In some cases commons may be auctioned to private individuals to generate surplus for collective use. The reciprocities may be specific and cross sectoral linkages weak at micro level.

It is obvious that 4-S model only provides a broad approximation of the institutional conditions. One would have to look into more precise dimensions to analyze institutional dynamics . We present the eco-institutional model next, to understand the linkage between access, assurances, abilities, and the attitudes with ecological resources, institutions, technology and culture.

2. Eco Institutional Model : 4-A (Access, Assurance, Ability and Attitudes)

The relationship between the variables on X and Y axis in Figure 2 is one to

one at one level. At another level each variable on an axis can be related to other variables on X and Y axis (Fig.2).If we know the parameters of two dimensions on X or Y axis we can speculate upon the parameters of the third dimension. For instance, if we know (a) what type of access condition exists vis-a-vis market resources in a given situation and (b) the distribution of skills and abilities among various groups, the type of assurances both vertical and horizontal required to generate sustainable resource use can be anticipated. The horizontal assurances refer to others' behaviour vis-a-vis one's own at a point of time and the vertical assurances refer to the future returns from present investments. The attitudes are both the result or the outcome of the experience with resource utilization and also the causal influence on the response to institutions. The attitudes provide a cultural basis of institutional working.

Once we have pursed the first and second level analysis of the institutions, we can move to the third level analysis given by eco-sociological framework (Fig.3). The micro level evolution of portfolios including options of resource use from private, public and common properties can then be better understood.

3. Eco-Sociological Paradigm (fig.3)

(Insert Fig 3 about here)

We make two assumptions: (1) Ecological conditions define the range of economic choices that can be sustained in given region; (2) The scale at which different enterprises are selected however, is a function of the access to factor and product markets, kinship networks, public, private and common institutions, historical resource reserves etc. Instead of calling it socio-ecological as we did it so far we call it now eco-sociological because of the dominance of the ecological dimensions of the sociological processes.

Earlier we assumed that in any given ecological niche only certain economic enterprises were feasible at the given level of technology and institutional infrastructure. However, we modify this condition to suggest that ecological endowments of proximal environment where a social community is located need not be focussed only . The distant environment where the community has customary or traditional rights through migration or any other such means have also to be taken into account.

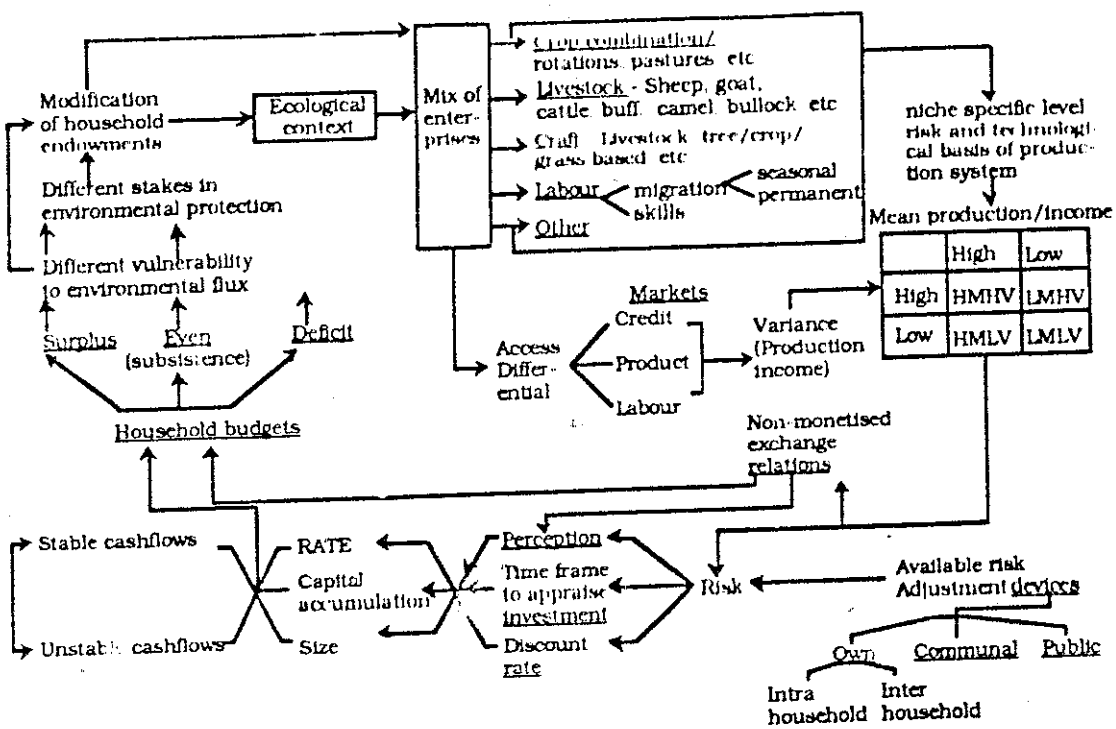
Thus once a mix of enterprise or a portfolio is selected drawing upon resources from private,public and common properties, the nature of risk inherent in these portfolios can be analyzed through a matrix of means or average and variance. The high mean -low variance portfolios would obviously be different in their implications for individual and collective behaviour than the portfolios with low mean and high variance.

Given an initial portfolio and its mean-variance or risk-return characteristics households may respond to given risk in the environment through following alternative means and/or a combination thereof.

a) Household level risk adjustments
b) Public risk reducing mechanisms and
c) Communal and common property risk adjustments.

Fig: 3

Eco-Sociological Paradigm For Analysing Household Economy in Dry Regions (Adapted from Gupta, 1985)



The household risk adjustments can be further analyzed at intra-household level and inter-household level. The intra-household risk adjustments include measures which a household can take recourse to by negotiations within the households. For instance, asset disposal, migration and reduction or modification of family consumption. The inter-household risk adjustment strategies include tenancy, borrowing, labour contracts, group ploughing, etc.

The public risk adjustment mechanisms imply availability of drought, flood relief, insurance mechanisms, public employment programmes etc. The communal risk adjustment strategies refer to the group based measures which require collective decision making either for utilizing or preserving private or common property resources.

Our contention is that even to understand the common property institutions we should analyze the resource relationship through various analytics as described above. Once the access to these risk adjustment options is known the households may modify either their perceptions or response or both by changing the discount rate or time frame used for appraising returns from each investment.

In turn the cash flows of the households may be in surplus, deficit or subsistence. In addition, the variability in these cash flows may be evened out over space, season, sector and social networks. The stakes of different social groups in management of ecological systems would vary in each resource market.

The trick is to develop a calculus in which unequal stakes of different groups in various resource systems or regimes generate a set of expectations which are equitable or appear equitable (given differences in cultural and social ways of perceiving returns) at the portfolio level of households (also see Nayak,1990). The fairness of these distributions cannot be estimated in our view from the individual point of view only. The group level estimation of aggregated effects of individual portfolios may generate rules that modify the conditions for use of resource, technology and institutions. Under extraordinary circumstances the cultural norms are also modified to accommodate ecological and sociological imperatives as seen in the case of Buddhist Bhutan.

Part Three

: Questions in search of answers

There are several issues which still are not explained appropriately. For instance, we do not know adequately the combination of conditions which generate positive and negative feedback effects on culture. For instance, we know that the practice of burial of dead people may have emerged among the Muslims because this religion evolved in deserts where supply of wood for burning might have been a constraint. Likewise, the custom of providing a share in the food for birds, ants, dogs etc. might have evolved among Hindus to coexist with various animal species in a rich biological environment of Indo-Gangetic plains. However, these are very partial and insufficient explanations of cultural codes. We need rich descriptions of cultural mechanisms to conserve commons. Work by McCay and Acheson (1987), Gerlach and Palmer (1981), Brara (1988), Kavoori(1989), Bonfigliali (1990), Niamir (1990) etc.,

are good illustrations.

We do not know adequately what levels of analysis are most productive and parsimonious in different ecological, cultural and technological contexts. To what extent the ethics of using sustainable low return technologies but compatible with common property institutions can adapt to the consumerist onslaught from the West.

Whether the assurances which were considered satisfactory in past will continue to be seen as such in future in the light of increased expectations from democratic populist governments. Distribution of relief during drought and floods has not only made some of the communal survival institutions redundant but also weakened the self help potential. My intention is not to underplay the importance of short term relief in the event of natural disasters. What I do feel however, is that the same relief can indeed be blended with the local self help potential and cultural and ecological and institutional endowments. The learned helplessness among the disadvantaged households in backward regions where CPRs are most critical for survival, generates alienation and sometime eco-destructive protests.

The survival of commons is necessary as a concept for sustainable development particularly in high risk environments. But we have to establish linkages between macro political economic regimes and micro and meso levels eco- sociological institutions. Analysis of common property institutions in isolation of private properties, open access resources, and cultural codes would serve only limited purpose.

The ethical basis of this framework needs careful analysis because the Eastern world view does differ from the Western perspectives. Within Eastern perspectives, the ethnic and tribal differences have to be accommodated.

The discontinuities, disorder, chaos, apparent in resource relationships has provided basis for individual and collective innovations. The search for sustainable solutions to decline of commons calls for an equally optimistic trust in human inventiveness and an eye for variability. Whether or how global efforts will accommodate local frameworks is a question that will answer perhaps several of the above questions.

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THE FOREST ECONOMY OF THE DANGS IN THE EARLY NINETEENTH CENTURY

DAVID HARDIMAN

In a recent book on the Warlis of Western India, Winin Pereira and Jeremy Seabrook have argued that these forest dwelling people had a system of forest conservation which was far superior to that of so-called 'scientific' foresters who have sought to control and manage the forests of India from the mid-nineteenth century onwards. They state that "Warlis have survived for millennia in harmony with their environment and without oppressing others. Their culture incorporates the spiritual and the material, the living and the non-living, into one integral whole. They consider themselves a part of living nature and hence nature is not exploitable. ... The consevation of many plants and animals in their jungles is a part of Warlis' culture, embedded in and perpetuated by customs and religious beliefs."[1] The book seeks to show how the Warlis have a much deeper knowledge of the trees, shrubs, herbs and animals of their environment than any outsiders. It is argued that their agricultural practices, involving such things as manuring the fields with burnt vegetation, selection of seed varieties, the use of 'natural' controllers of pests, their cattle grazing methods, are far more appropriate to their environment than the techniques and practices which 'scientific' advisers try to persuade them to adopt.[2]

Although it is clear that foresters and agricultural experts have much to learn from a detailed study of such practices, the chief point which Pereira and Seabrook are trying to make is that we must respect the particularity of the Warli's solutions to their problems of providing a subsistence for themselves in the forest. Being 'ecologically sound' means being always open to local imperatives and requirements.

In this they echo Gary Snyder, who has argued that a healthy ecological civilization is one that is rooted in the local, with the people who live in an area deciding how the land should be utilized. Ecological skills are specific to a region, being incalcated in each new generation from a store of knowledge evolved over long periods of time.[3]

However sympathetic we may be to this plea for respect for the beliefs and practices of those who live in a region, and who are nowadays often exploited and dominated by exterior classes who regard them with attitudes of superiority and arrogance, we must not be blind to certain problems in the writings of such environmentalists. Snyder claims - against much historical evidence - that in the past the local people who were close to nature "once lived free political lives" which allowed them to manage their environment without outside interference.[4] Pereira and Seabrook argue, as we have seen above, that "Warlis have survived for millennia in harmony with their environment and without oppressing others." No historical evidence is provided for this assertion. How do we relate this statement to the fact that there was in the area a Warli ruler of a small princely state called Jawhar? Did he rule in an entirely non-oppressive way? In such writings history disappears. A picture is conveyed of a people living in a state of consciousness and social organisation which continues largely unchanged until outside rulers came suddenly to grab their lands and turn them into an exploited and subaltern class. Pereira and Seabrook argue that until the British legalized the destruction of the Indian forests in the nineteenth century, a system of renewable resource use existed which allowed environmental stability.[5] A contrast is made between a stable and unchanging

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indigenous society and a harshly disruptive imperial system which attacked local practice and control so as to establish a system of standardised agriculture and markets in which capitalist organisations could find ready buyers for their products.[6] Using an argument seen in much Indian nationalist writing, the indigenous is seen as being rooted in an ancient wisdom which is far superior to that of the West. This wisdom is seen to be not merely local, but linking up with the values of the wider Indian civilization. Pereira and Seabrook hold that Indian scriptures, such as the Agni Purana, enjoined forest conservation. A similar argument is made more explicitly by Vandana Shiva in her book Staying Alive. According to her, the ancient traditions of India incorporated a deep scientific knowledge of the forest. She argues - following Rabindranath Tagore - that sadhus who lived in the forest accumulated a store of such wisdom, which was set out in the Aranyakas and other texts. These accorded with the "everyday beliefs of tribal and peasant society."[8] This was all shattered with the advent of colonial rule. In trying to homogenize 'Indian' in contrast to 'Western' beliefs, such arguments are informed by an essentialising Orientalism which holds that the civilization of India conserves forests, the civilization of the West destroys them. Such an understanding cannot begin to explain how it came about that most of India was deforested long before the period of colonial rule, or why the modern environmentalist movement should have arisen from a civilization supposed to be hostile to such concerns.

The other problem with such studies is that they are informed by a modern environmentalist consciousness which - however acceptable and appropriate it may be in a contemporary context - distorts historical

understanding. It is anachronistic to talk about a 'conservationist' mentality amongst Indian forest-dwellers for the pre-colonial period, for the idea of 'conservationism' is something which emerged out of the European reaction to the destruction wrought by the industrial revolution. Almost inevitably, once this mistake is made, an argument is advanced that the culture of the forest dwellers as a whole was 'conservationist', and social practices are analysed in terms of their role in preserving the environment. Such an analysis becomes narrowly ecological-functionalist, with a stress on the harmonious functioning of the system and a disregard of disjunctures. It has a tendency to reduce human behaviour to that of an animal-like adjustment to the environment, failing to see that human culture has a logic of its own which cannot be so reduced. It fails to address relationships of power, often assuming that there was no class differentiation in the forests.[10] Human culture is in reality shot through with relationships of power which determine access to scarce resources on the basis of differences of age, sex, kinship and class. Lack of such access to resources can cause under-nutrition, protein deficiency and poor health. It is not true, as Vandana Shiva holds, that famine was never a problem for forest dwellers in the past.[11] Such arguments ignore also the wider socio-political context, in which forest dwellers might have been exploited, for example, by merchants who underpayed them for produce which they collected from the forest.[12]

In highlighting such problems I do not want to question the validity of the demand of these writers for more ecologically-sensitive practices today. I too support such a programme with passion. Rather, I want to try to work towards a more satisfactory history of local practice, which reveals with greater rigour how and why forest dwellers related to the

forest in the way they did during particular historical periods. In this essay I shall concentrate on one particular forest tract of western India, the Dangs. This, incidentally, adjoins the region of the Warlis written about by Pereira and Seabrook. I shall look at this area for the period before the British Forest Department took over and managed the forests in a thorough manner. Although the tract was conquered by the British in 1830, and the local chiefs were forced from 1842 onwards to allow the British the sole right of exploiting the forests, it was not until the 1880s that the British began systematicall to demarcate forest reserves and to try to force the population to settle and cultivate in villages outside these reserves. My aim here is to look at forest society in the period before the establishment of the reserves, between roughly 1820 and 1880. My main sources in writing this history are British colonial writings of the nineteenth century, which I have used in a critical way; though my understanding has been informed also by several visits to the Dangs and meetings with people of the area during the 1980s.

II

The inhabitants of the Dangs were of two main classes: the Bhils, who were under several local chiefs, and subordinate peasants, known as gavits or 'villagers'. In 1872, the first census we have of the Dang 7,426 Bhils and 9,310 gavits were counted. The gavits were divided by jati or caste into 6,517 Kunbis or Konkanas, 2,491 Varlis and 302 Gamits.[13]

The Dangs represented a huge step between the flat alluvial plains of South Gujarat and the rugged plateau of the Maharashtrian Deccan.

It was however a step which had been cut into by a maze of deep river valleys which made travel in the region extremely difficult and hazardous Almost the entire area was covered in a blanket of thick forest. Little is known about the history of the Dangs before the nineteenth century, for it was a place avoided by outsiders. The Bhils were known to be valient fighters, adept at guerilla warfare, and they were feared by surrounding rulers. The hills and valleys were considered almost impenetrable. An Indian soldier in the service of the East India Company sent into the Dangs in 1828 reported that grass grew twenty to thirty feet high beneath the lofty trees, that no roads or paths were visible, and that it was a major task to find one's way through this grass.[14] A colonial official reported in 1843 that "the interior is so strong in hilly and raviney ground nothing can travel there but bullocks and ponies and even these animals have great difficulty in keeping their footing..."[15] The climate was considered extremely unhealthy; outsiders who visited the Dangs often succumbed to what one official called "the pestilential vapours of this unsettled land"[16] - which would appear to have been malaria. The terror was heightened by the wild animals - particularly tigers - which lurked in the tall grass. That the danger was real can be appreciated from the fact that as late as 1920 a missionary reported that in the past six months seventeen people had been eaten by tigers in the Dangs.[17] There was also great fear of evil spirits, believed to be particularly fearful in those deep forests. The Dangi people were supposed to be adept in the practice of sorcery and witchcraft, and this, more than anything else, made Indian officials and soldiers reluctant to enter the region.[18] These many fears had, until the coming of British rule, helped to protect the Dangs from outside control. There, Bhils were rulers.

It is likely that for many centuries the Bhils had some sort of relationship with the kings of Baglan, who ruled from Mulher, a town lying close to the eastern borders of the Dangs. In the early seventeenth century the area under the nominal sway of this kingdom included the Dangs.[19] The kingdom of Baglan ceased to exist only after its conquest by the Marathas at the time of Shivaji. The kingdom was known for its fertility, its grain production and export of high quality rice, sugar and numerous fruits.[20] It is probable that the peasants who produced this surplus were Kunbis (also known as Konkanas). The area occupied by this community coincides almost exactly with the area covered in the past by the Baglan kingdom. The Kunbis appear to have migrated to the area from the Konkan between the twelth and fourteenth centuries. Their language, a dialect of Marathi, has retained certain north Konkani elements.[21] They would have brought with them the farming techniques which they had used in the fertile valleys of the Konkan, which included rice cultivation, use of the plough and irrigation channels. To this day the Kunbis of the Valley running from the borders of the Dangs to Mulher maintain an elaborate irrigation system, with channels fed by streams running to the fields. The system appears to be of great antiquity. Broken remains of such irrigation works can be found in many parts of the region formerly under Baglan rule.[22] In the Dangs the Kunbis most probably occupied the wider valleys, where they could cultivate rice. It is difficult to ascertain whether they commonly used irrigation channels (which assumes fixed-field cultivation) in the Dangs. Remains of old irrigation systems appear to be found only in the areas close to the borders of the Dangs.[23] In much of the Dangs, the valleys may have been too steep

to permit such methods on a wide scale. Also, land was plentiful enough to allow shifting cultivation.

Although nominally under the rule of Baglan, the Bhil chiefs appear to have been almost completely independent, treating the Kunbis who inhabited the valleys of the Dangs as their subjects. When the Marathas conquered Baglan in the late seventeenth century they did not attempt to subjugate the Dangi Bhils. In the eighteenth century the Marathas considered the Dangs to be bandi mulak, or rebel land.

The Bhil chiefs appear to have been ranked fairly fluidly according to the power exercised by any one of them at a particular period. Almost all Bhils were related in some way or another to a chief.[24] The hierarchy amongst the Bhils was one based on power and status rather than material wealth. To all appearance, the chiefs were no better off than their subjects. When a Bhil chief was cremated, all his belongings, including his weapons and the furniture in his hut, would be burnt on the pyre.[25] Their dwellings were similar to those of other Dangis, being built of a wooden frame with bamboo walls smeared with a mixture of cowdung and mud, and the roof thatched with leaves. The Bhils were said to have a superstitious fear of living in pakka buildings.[26] This was likely to have been because of the belief that a display of wealth was likely to attract the attention of evil eyes. In fact, whenever a misfortune or disaster hit a family - such as an epidemic or fatality, which could include the death of livestock - the hut was considered to have become haunted and uninhabitable, and the family would desert their home and build a new hut elsewhere.[27] As their cultivation was of a shifting nature, their agriculture was not put

out unduly. It reveals the low value they placed on belongings such as a house. It was impossible also to distinguish a Bhil chief from other Bhils, or even gavits, by their dress. In the words of one British officer writing in 1841: "I have not observed any distinction in any one way from the Rajah to the subject, they appear all clothed in the same miserable scanty way..."[28]

Although hardly in any material sense superior to other Dangis, the chiefs demanded that others treat them with deference. People who sought an audience with a chief had to pay homage to him and present a gift - such as a chicken. In return the chief would present a piece of cloth. When he visited a village, the villagers were expected to greet him with a present, such as a bottle of liquor.[29] The chiefs and their Bhil companions made many other demands on the ordinary villagers. The chiefs did no field-labour, requiring their non-Bhil subjects to grow crops and feed them. The gavits were required to pay an annual land-tax, the amount of which varied according to whether cultivation was by plough or hand. The rate during much of the nineteenth century was Rs.2½ for cultivation by hand and Rs.5 for the use of one plough.[30] As a rule payment was made in grain. No Bhils had to pay this tax.

Both Bhils and gavits were strongly patriarchal. Their stories, as collected by D.P.Khanapurkar, show males always in a dominant position. Men were depicted as living a life of adventure, whereas women were shown as preparing food, fetching water from rivers or wells, wood from the forest, sweeping floors, pounding and grinding corn, washing garments, and looking after children and cattle. Women were praised for undergoing hardships to bring up their sons. Young women were depicted as

vain, proud and impatient, sometimes immoral. The heroes often had more than one wife, and there was jealousy between wives.[31] Girls were married when they reached puberty and sent to live and work in the house of their husband. Womens' songs revealed the pain and suffering of this situation.[32] Although both men and women who committed adultery were liable to be fined by their community, women so accused were liable, also, to have their noses cut off.[33] Dangi women were liable in addition to suffer accusations of witchcraft. When there was a calamity or illness in a village, it was common for a male spirit medium to be called to discover the 'witch' responsible. Once a woman was indicted she was liable to drastic punishment. Supposed witches were tied to trees and beaten severely, had their noses cut off or were tortured to death or killed in other ways.[34] These all provided means by which Dangi males exercised and maintained their power over Dangi women.

Bhils and gavits alike were described as being thin, without an ounce of spare flesh, and short in stature. Their health was described as being poor - no doubt because in common with many people who develop a resistance to malaria over the generations they suffered from sickle-cell anaemia. Like others who lived in malarious regions, they had badly enlarged spleens.[35] Materially, also, the Bhils were no better off than the gavits. In fact, the gavits usually had more plentiful stocks of grain than the Bhils. In times of need the Bhils often depended on these stocks for subsistence. To compensate to some extent ordinary Bhils often laboured for the gavits in their fields.[36] This form of labour was not considered by the Bhils to be at all demeaning.

The Bhils, and also many Varlis, practiced what was known as kumri or dali cultivation, which required no ploughing or weeding. A portion of the forest was selected during the cold weather - often on top of a plateau or higher side of a valley - and all bamboo trees and saplings were cut down, branches lopped off the big trees and timber stacked around the trunk. When the cuttings had dried out thoroughly - which had occurred by the hot weather - they were set on fire. The fire killed the big trees but left them standing. The reason for this was that to cut them down would have required much effort, but if left alive the leaves would have kept the sun off the growing crops and retarded their growth. The 'field' which resulted was an expanse of wood ash - often fifteen to twenty acres in extent - with the skeletons of large trees breaking the surface. Seeds - normally of nagli, a grain - were sown in the ashes. When the rains came the seeds sprouted Harvesting was possible by the end of the monsoon. The resulting crop was not as a rule very good, as the soil on these plateaus and slopes was of inferior quality. At most a clearing could be cultivated for two years - though it appears to have been common for a fresh portion of the forest to have been selected each year.[37]

The Kunbis mostly practiced what was known as rab cultivation. Here, the flatter land at the bottom of the valleys was preferred. As in kumri cultivation, an area of forest was selected during the cold season and it was cleared of saplings and bamboo. Branches were lopped off the larger trees. The debris and loppings were arranged in a square. During the hot weather, when they had dried out, they were burnt, and seeds, normally of nagli or rice were sown. Once the rain came, the

area around the seed bed was either ploughed or worked with hoes. When the seedlings had sprouted in their square seed bed to a height of about five inches, they were transplanted to the surrounding prepared area. This happened in July or August. Weeding was carried out towards the end of the monsoon in September. Reaping continued over the next three months, depending on when the grain ripened. Because of the extra care taken, the crop from rab was normally more plentiful than from kumri. If a plough was used about five acres was cultivated, if only a hoe, about two acres. Seed beds were made in the same place for two or three years. After this the soil became exhausted and a fresh patch of land had to be found.[38]

These methods of cultivation were possible because the population in the Dangs was low. Villages were very small and few and far between. According to one forest official: "The Dangs may be termed a sea of forest and trees, with small and isolated patches of cultivation scattered over it."[39] A 'village' consisted of often only two or three families residing in that place for only two or three years.

> ...about 90 per cent of the inhabitants of the Dangs care very little either on sentimental or other grounds where they locate themselves or where they cultivate so long as they can keep body or soul together, and the Raja of the particular Dang does not oppress them past endurance. Consequently if there be not sufficient land for cultivation near any particular group of huts...the people will readily move on to some other place or some other Dang.[40]

A record exists for a village called Khapadya for the period 1830-1870. This gives an idea of the way in which a village was occupied and deserted over time. In 1830 it was being cultivated by a Kunbi called Jana Patel. Although he paid a plough tax to the chief of Gadhvi, nobody used to go to the village to see if it was being cultivated. After

the Dangs was conquered by the British in 1830, Jana Patel deserted the village. It remained uninhabited for many years. Eventually Jana Patel returned with his son Eru, now aged 35. However, as they were forced to provide labour for touring officials and others from outside the Dangs, they soon left and went elsewhere. In 1867 Janu, Eru, and three other Kunbis returned to settle the site once more. In 1868 cholera broke out and Janu and some others died. The rest, includin Eru, deserted the village. It was still uninhabited in 1871.[41]

It is difficult to estimate to what extent hand cultivation predominated over plough cultivation. It seems that Bhils and Varlis almost never possessed a plough and that many Kunbis also lacked this resource. In 1891 a forest official estimated that there were 2,171 ploughs in use in the Dangs. In 1891 the total Kunbi population was 15,780. If we assume an average family size of five, this would mean that there were about 3,135 families, which meant that by that date a little over two-thirds of Kunbi families were using a plough.[42] The pattern then was for Kunbis to cultivate the flatter and richer valley floors, growing a wider variety of crops - including rice - with Bhils, Varlis and a few Kunbis cultivating the steep valley sides and barren hill tops where it was hard, if not impossible, to use a plough. Although population densities and numbers of ploughs would have changed during the course of the century, it is likely that the general pattern was similar in the early nineteenth century. In 1841 a British official remarked that what he called the arable land in the Dangs was chiefly in the swampy valleys and that it yielded crops of fine rice. The poor soil of the hills produced the common grain of the country.[43] It is not unlikely that this observation related to the difference between

the more intensive plough cultivation of a majority of the Kunbis and the less intensive kumri cultivation of the rest of the population.

Even after paying tax and satisfying the other demands of the Bhils, the Kunbis were normally able to eke out a subsistence from year to year without having to rely in any central manner on hunting and gathering. The kumri cultivation of the Bhils and Varlis on the other hand provided grain for only two or three months after harvest; during the rest of the year they depended very much on other sources of subsistence. The mahua flowers, which were ripe by late March, provided a good source of food initially, then other fruits, the grain from wild grasses and various roots. Some of the latter were poisonous and had to be soaked in water for several days before being safe to eat.[44] The Bhils were keen hunters with bow and arrow and, in a few cases, with guns. Their practice was to set fire to the tall forest grass to drive the animals out, so that they could sight and kill them. Hares were smoked out of their holes, and nets were spread on tracks along which hares were known to run. Birds could be caught by snaring their feet in loops, or by smearing perches with mahua gum to which they would stick when perched. Fishing was carried out sometimes in a group, with a party moving up a river in a line driving the fish into a place where they could be caught by net or hand. Bamboo traps were also used, and arrows tipped with a hook designed for catching fish. They also made an intoxicating herbal mixture called maj which stupified the fish when poured into water, which made them easy to catch.[45]

Forest produce was in demand from outside traders and the people of

the Dangs could earn both money and payment in kind by providing it for them. They did not cut and sell timber, for they were not able - or indeed prepared - to transport huge tree trunks up the ghats to Khandesh or down to the richer markets of South Gujarat. Large teams of bullocks were required to drag the timber through the forests and up the ghats, and once in the Deccan or on the plains, sturdy bullock carts were required drawn often by four bullocks. This trade was organised by merchants who lived in towns surrounding the Dangs. Even in the early nineteenth century, before the coming of the British, there was a thriving trade of this sort.[46] The normal pattern was for a trader to make contact with a Bhil chief in whose area he wished to operate. Once permission had been obtained, peasants from the plains were hired with bullock teams and carts. These peasants were free for such work during the off-season from February to May, which was also the least malarious period of the year in the Dangs. The wood was cut by these peasants and the local chief paid a sum for each cart exported. In 1826 Silpat, the leading chief of the time, took Rs.2-4-0 from each cart of timber which went out of his territory; two other chiefs took only Rs.2-2-0.[47] The payment was made both in cash and kind (e.g. grain, cloth and other products not obtainable in the Dangs).[48] The levy on timber provided the major source of income for the chiefs - greater than the protection money they took from surrounding plains villages and the plough tax. For instance in 1825 it was estimated that Silpat had an annual income of about Rs.5,000.[49] Of this, less than Rs.1,000 came from such protection money,[50] still less from the plough tax.[51]

The Dangis sold and bartered other forest produce to merchants who lived on the borders of the Dangs or to Banjara pack-bullock carriers

who came to the Dangs to graze their cattle during the summer. In 1843 the traffic in mahua flowers was reported to be second only to that of teak in the Dangs.[52] On 10 April 1856 a forest official travelling from Mulher to Gadhvi reported that the flowers of mahua were seen in full perfection "and the whole Bheel population were employed in collecting the same for sale."[53] The technique was to burn the grass beneath the mahua trees to create a bare floor on which the flowers could fall when ripe. The sweet sugary flowers were then gathered and left in the sun to dry out. After a month or so - normally in May - they were ready for sale. Banjaras carried some of the crop to the plains; the rest was taken to liquor dealers on the borders of the Dangs who used it for making country liquor, which was taken for sale to the plains villages or sold in towns such as Songadh, Vansda, Mulher or Pimpalner. Kunbis as well as Bhils took part in this trade. For many Dangis the mahua tree provided the chief means for earning cash, which they used for buying clothes, other essentials, as well as liquor.[54] There was also a trade in bamboo products - such as baskets, bamboo matting, winnowing mats and so on - which the Dangis made and then took to the borders of the Dangs. Traders came from the plains regions to acquire these products for sale in the villages and towns.[55] Other forest produce which could be sold in this manner were honey and lac, used for lacquering and taken from trees.

Dangis kept livestock, though they were not important for providing food directly. In 1891, when the human population was 32,920, the number of cows, bullocks and calves belonging to Dangis was 24,039. If we assume that there were about 7,000 families in the Dangs, the average number of cattle per family was about 3.4. Bullocks (of which there

were only 5,567) were used mainly for ploughing, cows for breeding. The cattle were of small stature and cows did not produce milk adequate to contribute to the diet of the people. There were very few buffaloes (which would have yielded milk): in 1892, 1,055. There were still fewer goats: 854. The cattle were let out to graze in the forest which surrounded the villages.[56] In addition Banjaras came into the Dangs during the hot weather to graze their herds, which could consist of up to 500 animals. As by the summer much of the grass had been burnt off by the Bhils, they supplemented the diet of their cattle with leaves lopped from the trees. They had to pay a sum to the local Bhil chief for this grazing - usually a fixed charge per one hundred cattle. The Banjaras often brought in a little coarse cotton cloth, cheap jewellery, beads, earthern pots and salt, which they sold or bartered to the Dangis.[5]

The relationship between the Dangis and the outside world had its more violent side, for the Bhils were feared by those in the surrounding region as looters. In the early decades of the nineteenth century the chiefs employed mercenaries in such raids, who were employed on a fairly short-term basis and were paid from the proceeds of raids or from protection money. The number fluctuated a lot; sometimes only fifty or so were employed by a chief, at other times up to six hundred. In 1825 the chief Silpat was reported to have in his service 165 such men.[5] Silpat appears to have been particularly adept at organising such raids and levying a regular tribute from the plains villages. As the foremost chief at the time, all other Bhils were supposed to obey his summons. In 1828 it was reported that Silpat could assemble a force of from 1,000 to 1,500 Bhils when required.[59] A few were armed with matchlocks most with bows and arrows.

The protection monies paid to the Bhil chiefs were known as haks. So long as these payments were made regularly, the Bhils would refrain from raiding the territory concerned. In the early 1820s for instance they began raiding villages in Gaikwadi territory lying to the north of the Dangs, claiming that the Gaikwad of Baroda's officials were refusing to hand over their customary tribute. Silpat claimed that haks worth Rs.1,520 a year were due to the Bhil chiefs, whereas the Gaikwad was prepared to concede only Rs.940.[60] This dispute led to the Gaikwad sending 10,000 troops to the Dangs in 1825 to crush the Bhils. Silpat, with his Mercenaries and Bhils, inflicted a humiliating defeat on this army, driving it out of the Dangs with casualties.[61]

The other outsiders with whom the Dangis had a good deal of contact were traders-cum moneylenders (sahukars). Sahukars lived in towns close to the borders of the Dangs, never in the tract itself. The largest debts were incurred by the Bhil chiefs, whose haks provided an attractive security for these urban sahukars. The Vaniyas of Songadh town used to provide any goods which Silpat sent for, as they knew that they would be reimbursed from the haks paid to him by the Gaikwadi government. When the British ruled that these payments should stop - to be replaced by haks paid by them from Pimpalner - the Vaniyas of Songadh refused to provide goods on demand from Silpat.[62] At the time of the payment of the haks - when the chiefs or their agents travelled to the town concerned - the sahukars would turn out in full force to take their repayments before the money could be spent in any other way. The debts of the Dangis who did not take any share of the haks were likely to have been much less, for they could provide no security to the sahukars. There is not however any good evidence on the matter for the early

nineteenth century. In 1871 we find a case of two sahukars of Navapur coming to a village under the Bhil Naik of Kirli and taking two bullocks and a cart from two Kunbis in repayment for debts. The incident found its way into the records because one of the Kunbis was so upset by this, the loss of his chief means of livelihood, that he hung himself.[63] The Vaniyas were certainly unpopular in the Dangs. The songs of the Dangis laud the Bhil chief Raghu Bhangria, who in 1845 headed a large body of Bhils who went around Khandesh cutting off the ears and noses of Marwari usurers, as well as the Koli rebel of Nasik District, Chimaniya Bhavani, who did the same.[64]

III

Power relationships in the Dangs were therefore already very complex in the early nineteenth century. The Bhils had their own hierarchy of chiefs, close relatives of the chiefs and ordinary Bhils. The Bhils as a whole lorded it over the gavit peasantry, expropriating a surplus from them. This led to poverty and malnutrition amongst the subordinate peasantry. Dangi men also exploited Dangi women. Although the Bhils levied protection money from the outside world, much of this money was appropriated by sahukars of the surrounding towns. The traders also purchased forest produce from the Dangis at rates which did not reflect the true cost of their labour, thus increasing the poverty of the Dangis. There is no way in which we can describe this forest society as being either egalitarian or 'naturally affluent'.

It is wrong, also, to try to argue that the Dangis were 'natural conservators' of their environment. As I have argued above, it would be

anachronistic to do so. For the people of the Dangs the forest was eternal - there was no consciousness that human beings could destroy this massive expanse of dense vegetation. They used the forest to maintain their way of life; they did not consciously try to conserve it. The Bhils in particular had an exploitative attitude - that of lords for whom the forest existed to support a particular way of life. They cut the vegetation and destroyed trees on steep slopes to grow their nagli in a way which saved labour but which caused inevitable erosion of the soil in the years before the wounds were able to heal. They allowed merchants to send in men to cut trees and carry them away in return for a fee; likewise, they allowed outside graziers to come and lop trees to feed their cattle, again for a fee. In their defence we can however say that this destruction was on so small a scale as to make very little difference to the forest as a whole.

The gavit peasantry, particularly the Kunbis, were less destructive in their use of the forest. Their peasant culture placed a higher value on harbouring scarce resources. They cultivated the valley floors, where land was less plentiful, but of greater fertility. They used a method of slash and burn cultivation - rab - which permitted a smaller area to grow a more plentiful crop. They did not destroy such a large area of forest as did the Bhils in their cultivation, and the area they cleared was less subject to erosion. In these respects, they were better conservationists than the Bhils. They were not however in the same league as those peasants who are forced to cultivate the same tiny plot of land year in year out, and thus evolve the most elaborate methods for preserving their environment.[65] The Kunbis could always move to a fresh stretch of forest once they had exhausted the fertility

of a particular plot of land. As yet, the forest was bountiful enough not to require the development of any very highly thrifty attitude towards the environment.

It should be stressed, however, that although the Dangis appropriated and transformed nature for their own needs, their use was highly selective and was guided by a conscious affinity with natural processes. They were not alienated from the environment in which they lived. Although outsiders were exploiting the natural resources and people of the Dangs before the British established strong control in the area, this was as yet on a relatively small scale. With the establishment of forest reserves by the British in the late nineteenth century a great change was inaugurated, in which the forests - and the people who lived there - became seen and used primarily as a resource within wider productive needs. During this period the very existence of the forests of the Dangs came to depend on the formulation of policies of conscious conservation.

Abbreviations used in footnotes: BA = Bombay Archives (Maharashtra State Archives, Bombay); BRO = Baroda Records Office; Comp. = Compilation; F.D. = Foreign Department; MV = Missionary Visitor (monthly journal of the Church of the Brethren Mission, published from Elgin, U.S.A.); NAI = National Archives of India, New Delhi; P.D. = Political Department; P.& S. = Political and Secret; R.D. = Revenue Department.

FOOTNOTES

1. Winin Pereira and Jeremy Seabrook, Asking the Earth: Farms, Forestry and Survival in India (London 1990), p.33.

2. Ibid., pp.36, 39-42, 117-21, 190-91.

3. Gary Snyder, 'The Place, the Region, and the Commons', in Snyder, The Practice of the Wild (San Fransisco 1990).

4. Ibid., p.36.

5. Pereira and Seabrook, p.5.

6. A large part of Pereira and Seabrook's book concentrates on showing how this process has continued since Indian independence.

7. Ibid., pp.4-5.

8. Vandana Shiva, Staying Alive: Women, Ecology and Survival in India (New Delhi 1988), pp.54-59.

9. For a history of conservationist and environmentalist thought see Donald Worster, Nature's Economy: A History of Ecological Ideas (New York 1985).

10. e.g. Pereira and Seabrook, p.33.

11. Vandana Shiva, pp.59-60.

12. For a sustained critique of ecological-functionalist arguments see Roy Ellen, Environment, Subsistence and Systems: The Ecology of Small-scale Social Formations (Cambridge 1982). Ellen tends to underestimate the devestating consequences which the combined forces of colonialism and capitalism have had on forest dwellers throughout the world over the past 150 years.

13. Census of the Bombay Presidency, 1872, Part III (Bombay 1875), p.63

14. Giberne to Newnham, 16 October 1828, BA, P.& S.Dept.1828, 29/30.

15. W.J.Morris to Reeves, 22 May 1843, NAI, F.D.Pol, 24 Feb.1844, 1-10.

16. D.Graham to Blane, 29 March 1839, BA, P.& S.Dept. 1839, 15/1011.

17. Report by B. Mary Roger, MV, May 1920.

18. Ashburner to Rogers, 23 October 1865, BRO, Rajdaftar Office, serial no.719, daftar V/479, file GRS/7, Residency no.I-73, p.195.

19. Gazetteer of the Bombay Presidency, Vol.XVI, Nasik (Bombay 1883), p.189.

20. Jamabandi Settlement Report of the Songadh Taluka of the Navsari Division 1902-03 (Baroda 1902), pp.3 & 25; Revision Survey Settlement of the Nandurbar Taluka of the Khandesh Collectorate, Selections from the Records of the Bombay Government, No.CCCXLIX, new series (Bombay 1896), pp.3-4.

21. G.A.Grierson, Linguistic Survey of India, Vol.IX (Calcutta 1907), p.130.

22. A British official who toured Navapur Pargana (just to the north of the Dangs) in 1839 found many dilapidated dams in the area. Dallas to Blane, 23 March 1839, BA, P.& S.Dept. 1839, 15/1011. B.H.Mehta mentions finding the ruins of 187 'substantial dams built of masonary' in a village of Songadh Taluka close to the border with the Dangs. B.H.Mehta, 'Social and Economic Conditions of the Chodhras, An Aboriginal Tribe of Gujarat', M.A.thesis, University of Bombay 1933, p.576. I found similar remains on my own travels in the region in the 1980s. Local people told me that they were built at the time of Gaoli-no Raj, which may well refer to the Baglan kingdom.

23. A missionary who visited the Dangi village of Bardipada in 1909 found that the river had in what he called 'ancient times' been dammed by a strong stone wall. This was still largely intact, and with slight repairs it could irrigate two to three square miles of excellent land, as it had done in the past. MV, October 1909, p.333. Bardipada is close to the northern border of the Dangs.

24. As reported by the sociologist D.P.Khanapurkar, who carried out fieldwork in the Dangs in the early 1940s. 'The Aboriginals of South Gujarat', Ph.D.thesis, University of Bombay 1944, p.913.

25. Ibid., p.159.

26. Report by G.A.Falconer, NAI, F.D., 181-P (Secret), 1934. F.G.H. Anderson reported in 1911 that there was an 'unwritten law' that th houses of chiefs and their close relatives were to have a teak frame, while the common people used inferior timber. 3 August 1911, BA, R.D. 1911, 120/1113.

27. A.T.Shuttleworth to Bombay Govt., 6 April 1871, BA, R.D.1871, 18/55

28. W.J.Morris to R.K.Pringle, 27 October 1841, NAI, F.D.Pol.23 Novembe 1844, 116-147.

29. Khanapurkar, 'Aboriginals of South Gujarat', pp.127-28; G.Giberne to W.Newnham, 16 Oct.1828, BA, P.& S. Dept. 1828, 29/320.

30. C.Pritchard to L.R.Ashburner, 15 October 1870, BRO, Rajdaftar Offic serial no.724, daftar V/432, file GRS/12, Residency 167-B, p.189; Report on Dangs by E.M.Hodgson, 29 August 1902, BA, R.D.1902, 107/949 II.

31. Khanapurkar, 'Aboriginals of South Gujarat', pp.712-713.

32. See songs in ibid., pp.936-37.

33. G.A.Rigby to A.Robertson, 30 October 1825, BRO,Rajdaftar office, serial no.719, daftar V/479, file GRS/7, Residency no.I-73, p.14.

34. Ibid., pp.14-15; W.H.Propert to H.N.B.Erskine, 12 July 1877,IOL V/10/1414; Khanapurkar, 'Aboriginals of South Gujarat', pp.62-63; T.B.Creagh Coen, 'Witchcraft in the Dangs', Man in India, XXV, 3, September 1945, pp.187-88.

35. G.Jervis, 9 September 1844, BA, R.D. 1846, 81/10.

36. M.C.Gibb to W.W.Loch, 8 July 1890, BA, R.D.1890, 93/948. The chiefs themselves did not carry out such labour.

37. Kumri or dali cultivation is described by A.T.Shuttleworth, 6 April 1871, BA, R.D. 1871, 18/552; Report on Dangs by E.M.Hodgson, 29 August 1902, BA, R.D. 1902, 107/949 II; Shuttelworth to E.W.Ravenscroft, 27 August 1877, BA, R.D. 1877, 69/1566.

38. Rab is described in Report on Dangs by E.M.Hodgson, 29 August 1902, BA, R.D. 1902, 107/949 II; Khanapurkar, 'Aboriginals of South Gujarat', pp.896-98. In these reports there is no reference made to the use of irrigation systems Either they had gone out of use, or they never existed in the heart of the Dangs. Archaeological investigation might be able to resolve this question.

39. Shuttleworth to Ravenscroft, 27 August 1877, BA, R.D. 1877, 69/1566.

40. J.A.Mc Iver to Collector of Khandesh, 12 July 1899, BA, R.D. 1901, 151/949 I

41. Enquiry by J.Campbell, 5 July 1871, BRO,Rajdaftar office, serial no.710, daf V/426, file 113, Residency file no. 167A & 316, pp.126-38.

42. A.Lucas to Collector of Khandesh, 1 September 1891, BA, R.D. 1892, 144/948. This report says that plough cultivation was confined almost entirely to Kunbis - hardly any Bhils or Varlis had ploughs.

43. W.J.Morris to R.K.Pringle, 27 October 1841, NAI, F.D. Pol. 23 November 1844 116-147.

44. Collector of Khandesh to Bombay Political Dept., 7 May 1856, BRO, Rajdaftar office, serial no. 710, daftar V/426, file 113, Residency file no.167A & 316, p.256.

45. Khanapurkar, 'Aboriginals of South Gujarat', pp.48-52.

46. Testimony by Budhya Naik, quoted by Political Agent in Khandesh to Resident in Baroda, 1 March 1872, BRO, Rajdaftar office, serial no. 710, daftar V/426, file 113, Residency file no.167A & 316, p.148.

47. Govt. of Baroda to British Resident, 26 January 1826, BRO, Rajdafter office, serial no.719, daftar V/479, file GRS/7, Residency no.I-73, p.59.

48. W.J.Morris to H.W.Reeves, 22 May 1843, NAI, F.D.Pol, 24 February 1844, 1-10.

49. G.A.Rigby to A.Robertson, 30 October 1825, BRO, Rajdaftar office, serial no.719, daftar V/479, file GRS/7, Residency no.I-73, p.47.

50. In 1828 the Gaikwad paid Rs.910 in protection money (haks) to Silpat. Silpat received almost no other haks. G.Giberne to J.Williams, 20 January 1828, BA, P.& S. Dept. 1828, 29/320.

51. No figures are available for the 1820s, but in 1870 the Raja of Gadhvi was said to realise Rs.270 a year from the plough-tax. C.Pritchard to L.R.Ashburner, 15 October 1870, BRO, Rajdaftar office, serial no.724, daftar V/432, file GRS/12, Residency 167-B, p.190.

52. W.J.Morris to H.W.Reeves, 22 May 1843, NAI, F.D.Pol, 24 February 1844, 1-10.

53. Report by W.J.Fenner on a tour of the Dangs in April 1856, in A.Gibson, Forest Reports of the Bombay Presidency for the Years 1849-50 to 1855-56 (Bombay 1857),p.80.

54. Memo. by Collector of Nasik, 10 April 1906, BA, R.D. 1906, 1/584.

55. Forest Commissioner, Central Circle to Commissioner Northern Division, 10 December 1894, BA, R.D. 1895, 314/948.

56. G.B.Reid to Bombay Govt.,15 February 1892 & A.Lucas to Collector of Khandesh, 1 September 1891, BA, R.D. 1892, 144/948.

57. Report on Dangs by E.M.Hodgson, 29 August 1902, BA, R.D.1902, 107/949 II.

58. G.A.Rigby to A.Robertson, 30 October 1825, BRO, Rajdaftar office, serial no.719, daftar V/479, file GRS/7, Residency no I-73, p.48.

59. G.Giberne to W.Newnham,16 October 1828,BA, P.& S.Dept. 1828, 29/320.

60. Memo. by the Gaikwad of Baroda, August 1864, BRO, Rajdaftar office, serial no. 719, daftar V/479, file GRS/7, Residency no.I-73, p.177.

61. D.C.Graham, 'Historical Sketch of the Bheel Tribes Inhabiting the Province of Khandesh', inSelections from the Records of the Bombay Government, No.XXVI - new series (Bombay 1856), p.207; G.E.Marjoribanks, Working Plan for the Dang Forests (Bombay 1926), p.4.

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62. D.C.Graham to G. Giberne,8 July 1828 & Giberne to W.Newnham, 28 May 1828, BA, P. & S. Dept 1828, 29/320.

63. L.R.Ashburner to Bombay Govt., 4 April 1871, BRO, Rajdaftar office, serial no.710, daftar V/426, file 113, Residency file no.167A & 316, p.293.

64. Khanapurkar, 'Aboriginals of South Gujarat', p.969. For the date of Raghu Bhangria's exploits see Report of the Committee on the Riots in Poona and Ahmednagar 1875 (Bombay 1876), p.7. For details about Chimaniya Bhavani, see BA, Judicial Dept 1899, 88/630.

65. The difference between such modes of cultivation has been explored in a revealing way for Indonesia by Clifford Geertz, Agricultural Involution: he Process of Ecological Change in Indonesia (Berkeley 1963), pp.15-35.

DRAFT

Politics of Nature: Interests, Commons Dilemmas and the State

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Ideas and Interests in the Politics of Nature

In the last two decades, the politics of nature has emerged as an increasingly significant phenomenon at the local, nation-state and international levels, in both rich and poor countries and, increasingly, between rich and poor nations. We should not overlook the historical antecedents of resistance in the form of defensive reactions by peripheral communities, particularly in the colonial world, to environmental degradation entailed in commercial appropriation of natural resources backed by the state, but in recent times the scale, intensity and scope of enviornmental politics has constituted a qualitatively new phenomenon.

In this evolution, ideas fostered by a new science of ecology have been fundamentally important, though not decisive. Ecology as a knowledge system indicates that there is an objective reality to the interests underlying conflictual ideologies of nature; in a telling formulation "nature bats last." This understanding, though unevenly accepted, provides scientific legitimation for core beliefs of communities long associated with nature: the interconnectedness of natural systems. But that collective long-term objective interest is relevant to political behavior only as interests are processed through cognitive frames and obtain political capabilities. The periodic catastrophes of small communities dependent on nature since neolithic times indicate the limitations of ecological imperatives in a political sense.

Though seldom interogated, the concept of "interest" dominates political enquiry, explicitly or covertly. It is precisely because of this core assumption that Elster (1985) and the "rational-choice marxists" find the possibilities for integration of apparently opposed frameworks of political analysis. The level of analysis remains problematic, but pluralist, marxian, state-centric and choice-theoretic frameworks proceed from the interests of groups, classes, states and individuals to produce predictions or post-dictive explanations of political phenomena. Whereas some interests are relatively non-problematic (individuals and organizations seek survival; regimes, continuity of rule; states, authority and power)[1], the field of environmental politics exhibits important singularities with regard to the conceptualization of interests.

Interests in environmental politics are certainly organized around familiar desiderata of survival and aggrandizement, but are simultaneously embedded in a field of extra-individual interests with defining characteristics: extreme uncertainty (and risk) mediated by a technical discourse, temporal distance of ultimate impact, threshold effects (or "tipping points"), irreversibility and counter-finality.

The embeddedness of individual and local interests in a larger public good has been conceptualized through the venerable metaphor of the "commons." Implied is a deeper problematic regarding the conceptualization of common interests: the familiar dispute over the meaning and weighting of that complex of aggregate outcomes covered by the ambiguous concept of "development."

In the dominant discourse on interests (with roots in Marx and Mannheim), ideologies function as rationalizations of interests, not rationales for behavior (Herring 1983: pp 271-274). In a political world dominated by material interests, it is puzzling that nature for itself (as opposed to nature appropriated for human use values) ever wins. The discourse of preservation, rooted in the value of species diversity as elaborated by the science of ecology, constitutes an ideational base for the politics of nature for itself, but remains dominated in most of the world by either a logic of conservation or a logic of "development" which privileges direct and immediate human material interests.

Human interests in nature are most evident in a nature already appropriated for human use; appropriated nature generates livelihoods and use values, as conceptualized in both mainstream and Marxian economic logic. The collective objective (and increasingly subjective) human interest in nature for itself posits ecological imperatives as a public good, independent of use values, introducing the conflict between a conservationist agenda rooted in social ecology and a preservationist agenda rooted in "deep ecology." In the subcontinent, as in much of the world, these alternative ideologies are rooted in different social bases. The best-case scenario for the environmentalist agenda politically is confluence of movements rooted in conservation and preservation to mitigate the accumulation and growth imperatives of dominant classes and the developmentalist state.

This essay will discuss the conceptual literature on interests in commons dilemmas, stressing the role of collective authority represented by the state. Empirical materials from the subcontinental region will be deployed to illustrate points in the argument. Finally, some speculative points on the politics of nature will conclude the discussion.

Common Interests in Natural Systems

Perhaps the dominant paradigm for understanding the politics of intersection between natural and social systems — the "tragedy of the commons" — is centered on a short-term individualistic maximizing assumption about human interests and behavior. The "tragedy" model has been a powerful metaphor for organizing much thinking about the persistent and severe, perhaps inevitable, contradictions between pursuit of individual material interests and the integrity of natural systems (Ostrom 1986). That simple metaphor/model has yoked discussion of environmental degradation to issues of collective action and common interest.

Though natural scientists may disagree on the "tipping points" of particular ecological systems, and thus question how close "tragedy" is at any given time, commons situations and commons dilemmas are pervasive in the interactions of societies (of whatever scale) and nature. What is politically disputed is the precise meaning of the common interest posited and the meaning of "nature."

The classic formulation of the tragedy theme was based on the destruction of grazing resources on the village commons because of a local societal failure to ration access (Hardin 1968). Though dominant, that perspective is wanting in several respects: a) its inevitability precludes attention to social learning and small-scale institutional innovation in the face of commons dilemmas; b) the small-scale focus, whether of tragedy or solutions, in turn slights problems of an over-arching authority represented by the state, which may be as much a part of the problem as of the solution; c) the assumption of narrow economic interests as driving behavior, while frequently accurate, slights a rich phemenological world of alternative conceptualizations of collective interests and the place (or oikos — home — whence ecology) of humans in natural systems.

In a deceptively simple and influential analytical move in the "tragedy" logic, maximization of individual material interests was held to produce sub-optimal, perhaps disastrous, consequences for that terrain: "the tragedy of the commons" (Hardin 1968; cf. Feeny et al. 1990; Ostrom 1986; Shiva 1986). But "tragedy" is only a part of the puzzles surrounding the commons. Robert Wade's formulation (1988:184) distinguishes between commons situations and commons dilemmas:

> "The exploitation of a common-pool resource is always a commons situation, in the sense that any resource characterized by joint use and subtractive benefits is potentially subject to crowding, depletion and degradation. But only some commons situations become commons dilemmas: those where joint use and

> subtractive benefits are combined with scarcity, and where in consequence joint users start to interfere with each other's use."

Properties of scarcity and subtractive benefits are largely properties of particular ecologies, given exogenous human demand. Prevention of escalation from commons situation to dilemma to tragedy is a function of property systems: institutionalized patterns of rights and obligations. Hardin's tragedy resulted not from a failure of common property, but rather a failure to preserve common pool resources precisely because no common property arrangements to limit use evolved. Though the Hardin problematic focuses on disaster, commons situations raise as clearly the potential of collective action to create new institutions in a progressive rather than defensive sense.

At the progressive end of the scale, there are commons situations in which potential benefits of collective action are foregone despite the existence of some common good that could be obtained through collective action. These benefits, such as rationalization of irrigation and grazing, are the subject of Wade's (1988) important investigation in South India. Wade's village institutions do have a defensive component -- prevention of conflict over common resources for example -- but are motivated by concern for improving production possibilities given difficult commons dilemmas.

A second situation analytically is one in which failures of collective action result not simply in foregoing benefits of optimal use of resources, but absolute degradation of the resource in question -- Hardin's "tragedy." Finally, there is the situation, typically not analyzed as a commons dilemma, of failure of collective action to preserve the integrity of nature itself, independent of its human-determined use values.

This final notion of commons introduces a second-order conflict: collective solutions to either of the first two types may actually run counter to solution of the commons dilemma represented by potential conflict between human use of nature and ecological imperatives. To take the simplest example, suppose Hardin's shepherds were able to act collectively not only to preserve grazing grounds but to pool labor to extend grazing into the surrounding forest or wetlands through tree cutting and/or water diversion or drainage. A common objective interest in preserving the surrounding ecosystem, whether or not subjectively perceived, would be forfeited through success in coping with more classic commons situations. Richard Eaton's (1990) study of the expanding frontier of cultivation at the expense of wetland forests in the Sunderbans[2] circa 1200-1750 illustrates this process: Islamic "saint-entrepreneurs" made use of symbolic appeals, underwritten by the space provided by superior authorities, to

mobilize for collective action which achieved some public good for participants (additional agricultural land) but simultaneously destroyed the Sundarbans in a piece-meal fashion at the margins.

The first two types of commons situations are not particularly problematic for a methodological individualism rooted in marginalist economic analysis of materialist interests. It is true, as Wade concludes, that our models of collective action often lack utility in dealing with real cases.[3] Nevertheless, the motivational base of the model is intact so long as we can safely assume material interests as a driving force. Wade shows that collective action to preserve common resources and increase production varies directly with material benefits entailed in the public good.[4] The second-order commons dilemma requires recognition of interests which are temporally removed, collective in the broadest sense (species-wide), and embedded in the uncertainty of a technical discourse which can be evaluated by a tiny elite. In the logic of methodological individualism, second-order dilemmas are the worst case scenario for collective action.

Second-Order Commons Dilemmas: Conservation and Preservation

The materialist assumption underlying the "tragedy" metaphor may not be wholly without problems, but these pale beside the problems encountered in the meta-commons issue of preserving the natural system in which local commons are embedded. The perception of conservation of a usable resource as a collective good is not nearly so problematic as conceptualizing preservation of eco-systems as a public good independently of their utility as resources. This is the classic Pinchot-Muir controversy of American historical experience, representing the struggle between meaning systems privileging conservation in opposition to those centered on preservation, or the conflict between social ecology and "deep" ecology.

The argument to this point is that the "commons" framework opens rather than forecloses investigation of institutional solutions to the problem of counter-finality which inevitably confronts society. Well-meaning and rational individual behavior may aggregate to produce unintended and catastrophic consequences. Such consequences can occur as classic "market failures" (in the specific sense of externalities) or as social institutional failures.

Social learning may mitigate the inexorable quality of the tragedy, but concentrations of power and the familiar dynamics of destitution and greed can block the process. The developmentalist state's cooptation of local political space replaces social learning potential with a prior claim of overarching protection, rooted in the logic of the tragedy of the commons. Moreover, interest-driven cooperation may offer little protection for nature per se, but rather for conservation of nature already employed as

economic resource. From the perspective of ecology, local systems are not only inter-connected, but dependent for their integrity on dynamics beyond their reach.

The logic in the tragedy-of-the-commons literature assumes that the value of the commons is instrumental. This notion carries over in the dominant policy language of "common property resources;" the natural is valuable insofar as it constitutes a resource, something to be exploited. Grazing lands in the original paradigm have value because they form the foundation for livelihoods; concrete material interests are identifiable. This instrumental view of nature in market economics is shared by the Marxian tradition.[5]

Conservation of the instrumental value of discrete elements of natural systems certainly constitutes a critical agenda for analysis of commons problems in concert with developmental policy issues. But these questions presuppose a nature already appropriated and altered for human use, and slight the issue of larger systemic effects on local resources. To take but one example, soil conservation locally may be futile in the face of soil contamination from acidified precipitation or water depletion from climatic change or flooding from upstream deforestation.

From the perspective of ecological science, a deeper set of questions concerns the conditions under which some parts of the natural environment not be used at all, not simply used in conserving ways. This is the second-order notion of commons: the common bio-physical world which supports a full complement of species and not merely our own. Even the most "rational," conserving use of pastures for sheep would be ruinous to the global commons if all forests were converted to pastures. The critical role of forests in the global biological system is well understood; the more challenging political proposition for deep ecologists is to demonstrate in ways that produce political resonance the value of even small components of larger ecosystems. The only material-interest argument which ecologists can bring relies on the specter of uncalculated risk; in destroying systems that are poorly understood, potential use values may be sacrificed unknowingly; perturbations of ecological systems may backfire at the level of material production possibilities in ways that are at present poorly understood.

By way of example, consider that the Sundarbans estuaries provide breeding grounds for some 400 species of fish, some of which are of commercial importance in an international commons -- the ocean (Rainboth 1987; 1990). At our present level of knowledge, it is difficult to calculate the risk of environmental perturbation in terms of depleting an international common property resource. How much risk is justifiable? Would the answer change if the only risk were to functional equivalents of the controversial snaildarter in the United States -- i.e., commercially useless

species? How does the calculation change if unmarketable fish consume vast quantities of mosquitoes which carry malaria? What is the justification for preservation of evidently "useless" species when the material gains from limited exploitation are demonstrably large? How politically viable is the argument that the next wonder drug may come from some yet-undiscovered organism inhabiting a tropical rainforest, even given historical precedents which suggest that the odds are fairly good?

The political argument for conservation depends on the commercial value of that which is to be conserved; conservation law in colonial India was generated by the imperatives of long-term access to forest products for export, military uses and construction of rail nets. The politics of preservation must be rooted in more tenuous values of aesthetics, risk, or species ethics (derived from the reality of species mastery). The tension between an instrumentalist view of nature and an idealist argument for the value of nature per se shadows the tension between the commoditization of market society and pre-market or extra-market sources of values. When value is measured by use, priced in markets, nature depends for its preservation on extra-market valuation in the "moral-economy"[6] tradition. In the absence of market power, preservationist values can become actualized only through a political process which bounds and limits markets.

Karl Polanyi's (1957) work reminds us that the transition to a market-dominated world is incomplete, and inevitably so. Societies of various ideological tendencies continue to constrain, bound and contravene particular market-driven outcomes. Much of contemporary politics, inside and outside the environmental sphere, concerns boundary demarcations between what markets can decide and what they cannot, or should not (Herring 1990: Chapter 8).

In the classic formulation of "the tragedy of the commons" (Hardin 1968), the tragedy was the failure of collective social institutions to prevent the externalities of private maximizing behavior from ruining a common resource to the detriment of all individuals in the local social system. The "tragedy" is simply another, though one of the most dramatic, of examples of what Sartre calls "counter-finality": the unintended negative consequences at the collective level of individually "rational" decisions (cf. Elster 1985:24). The problem of the commons is then nothing more than a particularly poignant illustration of the necessity of coming to terms with a fundamental dilemma of social life: certain collective goods can be achieved only through authoritative interference with a Hobbesian (or Kautilyan) world of individual maximizing behavior.

Property systems are systems of rules. It is in the theoretical elaboration of the sources, nature, and enforcement of those rules that the tragedy paradigm generates the most contentious issues. Much of the debate at the intellectual and

regime level (e.g. Guha 1990) centers on how much can be assumed about local capacity to manage local commons dilemmas, preventing their escalation to tragedy.

The utility of the Hardin model depends fundamentally on two core assumptions: material self-interests as the motivating force in individuals' use of natural systems and incapacity for social learning. The two are linked in the genre of analysis relying on prisoner's dilemma games. The assumption of "rational-actor" premises regarding human behavior is too complex to address here (cf. Herring 1980; 1989), but some preliminary comments are appropriate regarding the communitarian solution to the tragedy problem. On the capacity of communities of "traditional" or "ecosystem people" (Klee 1980:1) to regulate use in conserving ways, there is considerable debate. While hunting, gathering and fishing communities may indeed impose limits to conserve their commons, slash-and-burn agriculturalists and frontier-expanding peasants with "ax and plow," as in the case of the Sunderbans, are more problematic.

There is evidence on both sides of this debate; the long history of ecological disasters in local commons dating to neolithic times suggests caution in accepting the current almost Narodniki romanticization of the capacity of small communities to counter disaster. Nevertheless, proponents of the materialist individual maximization position occupy the high ground in terms of broader social theory. For example, Bromley and Chapagian (1984) report quasi-experimental results from Nepal which suggest a clear village-level understanding of the concept of "fairness" in utilization of the commons and far less free-riding than is typically assumed. Their summary comment is provocative (ibid. p. 871):

> "Observations by anthropologists that Asian villagers do cooperate on resource-use decisions are considered quaint anecdotes of doubtful generality...Economic theory says that individuals will free ride, and therefore any data to the contrary are immediately suspect."

The reality is that both opportunism and cooperation, respect for nature and instrumental uses of nature coexist in societies of all sizes, buttressed by contradictory cultural norms and the structural conflict between economic opportunity and ecology. Though face-to-face communities are capable of employing mechanisms unavailable in single-play prisoner's dilemma games, social learning presupposes political space and insulation of individuals from the pressures of destitution.[7]

These observations suggest a limit to the romanticization of localism current in academic treatments of small communities confronting commons dilemmas. Leviathan in the form of restrictive colonial practices rooted in a new discourse of scientific

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forestry finally reversed the destruction of the Sundarbans which itself had been accelerated by previous colonial policy incentives for converting "waste" into cultivable (and taxable) land, but piecemeal destruction clearly preceded colonial rule.[8]

The destruction of half the Sundarbans over seven centuries speaks to issues of both values and knowledge.[9] It is unlikely that any conceivable local institutions could have preserved the eco-system as a whole, since there would be no mechanism for discerning the tipping points and extra-local sources of degradation and no means of exerting extra-local control. Even today, with satellite photography, computer simulations of hydrology, and scientific methods of investigating ecological dynamics, too little is known about the carrying capacity of the system or sources of fatal perturbation of the Sundarbans eco-system (Rainboth 1987; Wescoat 1987). Territoriality of the commons dilemma is thus crucial, in conjunction with available information on systemic limits and threshold effects, as well as the perceptual frame in which this information is embedded.

The demonstrated capacity of small communities to conserve their local natural resources for sustained yield is bounded not only by the problematic of territoriality and second-order commons dilemmas noted above, but also by pressures imposed by a very modern force: population increases (cf Jodha 1985). Unless the commons can expand to create a constant opportunity/person ratio, pressure on local norms of conservation will increase. As we move from conservation of usable resources to preservation of an ecosystem, the boundary conditions become more stringent and the examples of local solutions less relevant. Thus the "tragedy" perspective remains relevant even in situations in which local institutions have evolved to protect elements of the environmental resource base; claims by the state and population pressures may destroy the conditions under which traditional conservation norms could be enforced (for examples, Murton 1980: 87, 91, 93; Jodha 1985; Gadgil and Iyer 1988).

Whatever the validity of models based on individual maximization as a characterization of human nature, community as a normative construct presupposes certain minimal material and political conditions rooted in the local and national political economy. It is not accidental that individual maximization models of human behavior coincided with the establishment of market capitalism; the individuating pressures of Polanyi's (1957) "great transformation" may not be inexorable, but are certainly powerful. Colonial policy in the Sundarbans initiated individuation and quasi-privatization through the mechanism of auction, license and selective limitation of wood-cutting and access rights. In general, historical interaction with a centralizing state and spatially expanding market rendered local institutional arrangements to preserve common resources rear-guard operations, whether of overt conflict or covert evasion and non-compliance.

Defensive Reactions

The literature on defensive reactions derives from unresolved conflicts in what Karl Polanyi called "the great transformation." Polanyi noted (1957:71):

> "But land and labor are no other than the human beings themselves of which every society consists and the natural surroundings in which it exists. To include them in the market mechanism is to subordinate the substance of society to the laws of the market."

When Polanyi conceptualized the commoditization of nature a central element in the "great transformation" to market society, he had in mind a process much broader than mere enclosures of the classic form: "What we call land is an element of nature inextricably interwoven with man's institutions. To isolate it and form a market out of it was perhaps the weirdest of all undertakings of our ancestors (Polanyi 1957:178)." In his formulation, pre-market economic relations, norms and outcomes were "embedded" or "submerged" in social relations generally; the extraction and elevation of market-driven dynamics from their social mooring produces significant social conflicts and centrally involves the state (compare Neale 1988). There is nothing "natural" about the market as arbiter of allocative decisions; challenges to market allocative rules evoked the use rights established by custom and common law as bases for opposition.

Commoditization of land as individuated market property -- whether held by the state or reallocated -- has engendered, as Polanyi noted, defensive reactions of local populations threatened thereby, assuming the form of both frontal assaults and non-compliance. Robin Hood mobilized on the issue of challenging the state's novel proprietary claims on forests and game. "Tribal" and "peasant" revolts in India throughout the 19th and 20th centuries were triggered by analogous claims (K.S. Singh, 1986; Guha, 1989).

Indeed, much of the conflict over "the commons" is ideologically a conflict between alternative meanings of property and the rights of states to impose novel proprietary claims. An appropriate appreciation of indigenous conceptualizations of property entails recognition of a socially defined (and disputed) "bundle of rights" (Baden-Powell 1892:V.I, p216, passim; Herring, 1983) to patches of the physical surface of the planet. The making of market society entails the long historical process of collapsing differentiated use rights into a system of ownership in which individual private property rights are generally bounded only by the prior claims of the state.

Stratified use rights in common lands in South Asia were central to broader social organization historically. The structure

of these rights was an adjunct of integrative social institutions such as caste, service obligations, temple maintenance, and kinship systems. In his classic work, Baden-Powell (1892: I, 219) approvingly cites Campbell's Essay on Indian Land Tenures:

> "In the greater part of world the right of cultivating particular portions of the earth is rather a privilege than a property—a privilege first of the whole people, then of a particular tribe or a particular village community, and finally of particular individuals of the community. In this last stage land is partitioned off to those individuals as a matter of mutual convenience, but not as unconditional property; it remains subject to certain conditions and to reversionary interests of the community, which prevent its uncontrolled alienation, and attach to it certain common rights and common burdens."

Village commons in India date from at least the Laws of Manu (200 B.C. or thereabouts). "Manu" specified the precise area for indivisible common pasture lands for both villages and towns (Ayyar 1976:83). Moreover, the ancient concept of private property (swamya, swatwa) presupposes an open-access commons in the sense of res nullius (that which belongs to no one); for Manu, the most fundamental ideas of property were contained in the axiom: the field belongs to whoever clears it from jungle (Baden-Powell 1892:I, 127; Ayyar 1976:76). This Lockean notion (pre-Locke, of course), together with Manu's strictures on grants of unutilized lands by the King, implies a view of nature as potential resource, where labor expenditure permits the transformation of a common res nullius into individual use rights subject to general approval by royal authority.[10] Once claimed, property became subject to conditions of use and alienation enforced by a village community. Only in cases of dispute between or within villages did Manu posit the need for intervention by central authority (Ayyar 1976:82).

The effect of colonial law was to simplify, collapse and locate concretely the bundle of rights in land with the objective of creating property rights in the sense of market property (e.g., Logan 1887:I, 670-696; Neale 1988). Simultaneously, vast tracts were "reserved" for the state on the claim that unused "waste" land had traditionally been "the property of the state" (Baden-Powell, 1892: I, 236). In this transformation, the use rights of subordinate strata depended more on the capacity to exert local power or evade regulation than on legal tradition or inertia of custom. Contemporary acts of subversion of conservatory law in the Sundarbans reflect assertion of use rights against the state dating from colonial claims of the late nineteenth century.[11]

Rights in agricultural land and village grazing and woodlots retained a complex structure of overlapping use rights (nishtar,

etc.) into the contemporary period, though the overall system was clearly moving in the direction of fee simple ownership rights characteristic of market society. Residuals remain in such institutions as the ability of tenants to mortgage use rights to institutional lenders. From the perspective of the meta-commons problematic, it is more important that vast tracts of forest and uncultivated land remained outside the net of individuated ownership until the 19th Century. In the Sundarbans, colonial claims to proprietorship over forests required dissolution of existing zamindari and common law claims through the extension of regulatory and property-entitlement mechanisms by the state (Richards and Flint 1990). Chhatrapati Singh (1986:2) estimates that until the end of the last century, "at least 80 percent of India's natural resources were common property" and speculates that "even a ratio of 90:10 for common versus private property" is plausible.

More important for political analysis than any numerical ratio between common and private rights, which must remain speculative, is the historical reality of struggles set in motion by attempts of the state to claim and manage a commons previously defined by local usage (eg. Guha 1985; 1989; K.S. Singh 1986; Omvedt 1987). The colonial state's marriage of revenue/developmental imperatives (plantations, logging) with an emerging scientific discourse of forest management and conservation established both an internal dialectic of colonial policy debates on land use (cf. Presler, 1987; Tucker 1984), and a continuing confrontation with local societies' definitions of the commons. This conflict continues today, perhaps most sharply in the resistance of local communities of upstream forest dwellers and the state's claim to develop hydroelectric and irrigation potential through dam construction (CSE, 1986: 99-120).

Village common lands and claims of common use rights to forests persist despite the transition to market property systems throughout the region. Terms such as shamilat, khas and nishtar continue to connote village commons. The near universality of village commons, and pressures for their privatization, is documented by Schenk-Sandbergen (1988:1.2), based on her own research and secondary analysis of classic anthropological studies. N. S. Jodha, in a path-breaking empirical analysis, has documented the importance of "common property resources" to the village poor in India (Jodha 1986). His survey found that the economic benefits of using the commons were greater for the village poor than were the benefits of government programs targeted for their welfare.

Village commons in India reduce income inequality as well as dependency relations between males and females (compare Agarwal 1990:12, passim). These common resources are under intense pressure from powerful people in the village who are attempting to privatize the land, often successfully. Philip Oldenburg (1986) has

demonstrated the use of village common lands in the process of land consolidation (chakbundi) in contemporary Uttar Pradesh. Gadgil and Iyer (1988) stress the effectiveness of local institutions in Karnataka in protecting sacred groves and small forests even in the face of state opposition. Acharya's study of Jirel forest management (1989) in Nepal indicates a complex variety of property rights from individuated to joint to common, varying significantly over the space of but a few kilometers and over seasonal cycles of production.

The most visible form of aggregate politics of nature in India has been in the mode of what students of peasant politics call "defensive reactions." The "Chipko" movement is archetypal, reflecting long historical continuity of rural protest against the centralization of authority and denial of traditional rights of access to a natural forest system (Guha 1989; see infra). Similar local defensive reactions have occurred throughout India, protesting the state's proprietary claim on local systems which provide subsistence routines (Bandyopadhyay and Shiva 1988: 1224-1225; Raghunandan 1987). The political parallel to the United States is clear; NIMBY ("not in my backyard") movements reflecting local opposition to local environmental degradation have been quite effective in blocking or delaying specific projects, often more effective than national preservationist organizations which focus on lobbying the legislature.

It is in one sense not surprising that destruction of forests, water, grazing, and foraging resources evokes widespread protest from "subsistence" communities whose livelihoods are threatened. Yet collective political preotest is in no sense an automatic product of collective deprivation. Collective defensive action is facilitated by perceived common interests in preservation of systems which are held to be in equilibrium with human uses. Pre-Leviathan local systems for managing commons dilemmas, which were destroyed by colonial policy, formed the basis for subsequent collective action. The outcome is clearly the antithesis of the "tragedy" prediction; material interests in nature are recognized and form the basis for collective action to protect common interests.

Property rights in nature should thus not be conceptualized as stable parameters of the Indic social system, but as dynamic outcomes of contested pressures for centralization and privatization, as well as institutional adaptations to new dilemmas and opportunities locally. In this process, ecological consciousness has arguably remained more in the realm of defensive reactions than in the realm of recognition of second-order commons imperatives (compare Raghunandan 1987).

State and Commons

The original tragedy model assumed that no cooperative

strategies would emerge among shepherds maximizing their individual gains from a common pasture. As a consequence, one solution is that of Thomas Hobbes (and Kautilya[12]): a powerful state which could enforce its will on subjects for their own (common) good. This legitimation is common in environmental preservation: protection of the "Silent Valley" rain forest in South India was the act of an elitist and authoritarian government acting contrary to the clearly expressed democratic voice of inhabitants of the region (see below). Preservation of what is left of the Sundarbans arguably demonstrates the preservationist capacity of centralized administration (e.g. Presler 1987; Blair 1990).

The problem with the Leviathan solution in political theory is the absence of a guarantee, or even a likelihood, that the state will not behave in the same self-seeking, social-disregarding manner as individuals (cf. Ostrom 1986). The environmental profligacy of modern nation states of authoritarian bent certainly confirms the possibility. States in the real world are influenced, often captured, by interests which run counter to environmental values. Running counter to the solution's assumption of a strong state are the more prevalent conceptualizations in the literature: the "soft" state, the parasitic state, the developmentalist state, and so forth.

But even with relative autonomy and capacity, Leviathan must be fed. Pressures for taxation revenue and hard currency earnings have abetted environmental degradation throughout the subcontinent (e.g., Agarwal 1985: 363-366; McCarthy 1987). Much of the destruction of the Sundarbans was driven by policies of the colonial state to encourage conversion of "waste" to taxable cropland inhabited by industrious and dependent peasants.

Even granted the assumption of a strong state, the probability that such a state may disregard commons requirements is the argument for democracy as a protector of society's environment. The parallel to economic planning is obvious — centralized states may hve Lindblom's "strong thumbs," but lack the nimble fingers necessary to adapt to local conditions (and often the information to do so). Under democratic conditions, at least a cybernetic corrective alternative to state errors exists.

Positing strong individual private property rights as a bulwark of democracy, and simultaneously as a corrective to the tragedy of the commons, the property-rights school comes down heavily on the side of harnessing individuated property interests to environmental protection. In the original "tragedy" paradigm, no rational shepherd would degrade his/her own land by overgrazing, and therefore the division of common pasture into individually owned plots would avert the destruction of a common resource (cf. Ostrom 1986:8).

The problems with the property-rights solution are two

internally, and one externally. Internally, property rights are useful only for insuring that the level of exploitation does not measurably degrade the resource any further than the value of the short-term benefits of exploitation as determined by market forces as mediated by the state. Conservation will, even in the best-case scenario, be limited to the very loose constraint that degradation does not interfere with market rationality. Market rationality, in turn, will only incidentally coincide with ecological rationality (compare Singh 1976; Desai 1987; Nadkarni 1987). Ecosystems are large and complex; individually rational behaviors (diversion of surface water, draining of wetlands, clearing of forests, etc.) still offer the likelihood of counter-finality in a context which is extra-local and extended in time.

A collective property-rights solution may work fairly well in closed, bounded systems in which conservation and exploitation interests coincide (e.g. fishing, tree harvesting), but still requires some broader collective political authority to maintain boundaries, prevent externalities and mediate disputes among the overlapping commons situations which are inevitable given the interconnectedness of ecological systems. As importantly, human lives are short in terms of the evolution of ecosystems; it is difficult to imagine a fit between short-term interests and intergenerational "rationality," or justice, being generated by the market (Nadkarni 1987: 360-61 et passim).

The external critique of the property-rights solution is of course that in modern South Asia, as in much of the world, individuated property rights exclude whole classes of society, with unacceptable human costs and political dynamics which challenge the solution itself. Privatization of village commons in India has simply constricted further the survival options of the poorest villagers (Jodha 1986). Whether or not market logic will then direct redeployment of resources in a manner that creates a net increase in opportunities is an empirical question, but there are reasons to be pessimistic on both ecological and social-justice grounds.

Because of the theoretically and empirically problematic character of conventional solutions to commons dilemmas, cooperation and social learning as solutions assume increased relevance. Because of the rational-choice base of the tragedy paradigm, much work has proceeded in the game-theoretic vein of prisoner dilemma situations in which cooperation, though desirable to everyone, is ruled out by pursuit of interests (Ostrom 1986; e.g., Gadgil et al. 1984; Feeny et al. 1990). In the real world, prisoner dilemma situations are rare, however powerful the original logic. As Axelrod (1984) and others have argued, in repeated games cooperation becomes a live possibility. Evolution of social institutions can be thought of as a series of repeated games in which conflict, or recognition of the benefits of cooperation, produces self-correcting change.

As importantly for theory, there is nothing in logic which prevents privatization from meaning devolution to local corporate bodies rather than individuals; as Bromley and Chapagian (1984: 870) note, "the matter of private control over resources refers to the ability to exclude others, not to how many individuals share in the decision making by those not excluded." That extremely large and complex social organizations such as business corporations should be considered individual actors in theory and law whereas villages are a priori held to be incapable of rational action does seem bizarre.

To return to Hardin's case, there is no reason to expect that shepherds would not recognize impending disaster and evolve rules and enforcement mechanisms to preserve their common livelihood base. There are clear empirical examples in the region (Acharya 1989; Gadgil and Iyer 1988; Murton 1980). Elinor Ostrom (1986) likewise provides examples of small-scale social systems which have overcome the tragedy of the commons in exactly this manner. Robert Wade's important work on India (1988) persuasively argues that the presumed collective action problem has been overcome in villages in which the collective benefits of managing irrigation and grazing exceed some threshold level (which itself is a function of the local ecology). But Wade's work does not suggest great optimism about the prospects for collective action beyond that motivated by material self-interest in managing resources. In a section of Village Republics termed "the moral basis," Wade (1988: 194-95) writes:

> It is striking how little people in these [successful] villages are steered by a sense of devotion or obligation to a non-self-regarding 'cause', such as 'the welfare of the village' or 'cooperative ways of doing things'.

Cooperation thus appears fragile, and may presuppose some theshold of material benefits; even such collectively organized conserving rules as have evolved may succumb to pressures arising from inside or outside the local system. These pressures have much to do with the international economic environment, the distribution of property rights, public "safety nets," and the like. Moreover, social learning in the real world is subject to blockages of concentrated power and stratified interests, just as Habermas (1973) notes for social rationality in general. Cooperative institutions are for the same reasons difficult to create and sustain (Herring 1983:263-64). But cooperation when material benefits are increased is far easier to initiate and maintain than cooperation on the second-order commons dilemmas, where the threat of "tragedy" is more real.

Once we expand the notion of commons to include the biological systems which support a full complement of species (and not merely

our own), the usefulness of the "tragedy-of-the-commons" formulation lies in its explicit confrontation with the contradictions outlined above. First, whereas there may be small-scale solutions to the tragedy problem with regard to instrumental uses of nature, preservation of nature in a "useless" (primordial, or at least steady, state) requires the identification and mobilization of interests to compete with those of individual gain and survival. Given the level of human destitution in South Asia, this dilemma is difficult to resolve even in normative terms.

Though the poor are often seen as the greatest threat to fragile ecosystems,[13] they are more importantly the first victims of environmental degradation (Agarwal 1985; C. Singh 1986). Attacks on preservationist policies as anti-poor may thus be as misleading as pro-growth policies which appear to expand opportunities in the short run. But the greatest distortion in the environment-vs.-growth policy discourse relating to the poor is the projection of desperation as exogenously given and beyond the reach of redistributive policy. Land reform and employment-sensitive technology choices are but two prominent examples. Policies which increase destitution and competition aggravate pressures on fragile environments.

But more problematic environmentally than the poor are the powerful. Their social connections and access to bureaucracy are major obstacles to the preservation of economically attractive zones. It is here that the Leviathan solution arises, but manifests its problematic character.

Leviathan as metaphor conveniently links will and implementation in one (resolute) actor. States of the subcontinental region are indeed "soft" (in Gunnar Myrdal's memorable formulation), but selectively so. Even under non-democratic regimes, a strong state is hard to come by. The permeability of (especially) the local state to powerful interests bent on exploitation is a pervasive phenomenon in South Asia and the source of significant environmental degradation (e.g. CSE 1986: 353-382). But most importantly, Leviathan is not a stable configuration; exclusion and control evoke the politics of opposition and evasion.

Real states in the subcontinental region demonstrate not only the permeability and bureaucratic pathologies which generate "softness," but also both vertical and horizontal incoherence; as lower levels of the state ramify into society, they become less and less distinguishable <u>from</u> society, much as blood vessels ramify into capillaries and finally disappear into tissue. Neither political will at the top, nor transmission capacity through the system can be assumed. More importantly, real implementation must take place on the ground, where the local state exhibits the permeability, incapacity and embeddedness characteristics in extreme form.

Because of these political conditions, the tragedy of the commons in South Asia is a more serious case of "counter-finality" than even the original theoretical model implied. This is true because the theoretically possible solutions present severe difficulties in the concrete social settings of the region -- extraordinary levels of destitution, state incapacity -- and because one must distinguish common property resources from the environment generally as a commons. The politics of the environment in the region represent variable levels of intensity, but it is clear that the state in general cannot play the Leviathan role effectively. Indeed, having the state weigh in on the side of preservation may prove counter-productive, so deeply is it compromised in local political perceptions. In the case of "Silent Valley" in South India, the Center's intervention on the side of preservation aided in transforming political dynamics in the direction of local people vs. the state, periphery vs. center and, in a curious twist, Bharat vs. India (see below).

For the conservationist political agenda, there are clearly opportunities for the linkage of natural resource policy to strategies for economic development focused on secure livelihood for the most desperate citizens (cf. The World Commission on Environment and Development 1987). As a concrete example, some pressure for drowning "Silent Valley" was released by promising jobs in the construction and maintenance of a research institute in the area. Likewise, genuine land reform can relieve land hunger which drives invasion of fringe areas of reserves[14] and simultaneously reduce some blockages to cooperation and institutional change. Food for Work programs can be targeted for relieving pressure immediately surrounding fragile areas. Technological change of the most simple sort -- improved village stoves, alternative cooking fuel sources -- as well as ecologically sensitive social forestry programs can marginally relieve deforestation pressures (Bhattacharyya 1990).

Nevertheless, contradiction between livelihoods and preservation remains as a function of market dynamics in the existing context of skewed distribution of assets and extreme pauperization. Though some environmentally progressive change is possible within that configuration, assuming significant alteration of political dynamics, substantial progress would require quite fundamental rethinking of the relative values of growth per se, social justice and political democracy in the context of environmental crisis.

Policy changes of the sort envisioned above are already supported by political groupings of both the locally endangered fighting defensive struggles against developmentalism (e.g. CSE 1986:353-382) and elite groups influenced by both social ecology rooted in a leftist critique of existing distributive routines and more internationalist understandings of ecological imperatives.

Their opponents have the advantages of a legitimating logic of developmentalism and the political power of property on their side. Whereas defensive reactions of the poor resonate with struggles dating from at least colonial times, elite conservationists represent the opening wedge of a fundamentally new ideological framing of environmental issues (e.g. Nandy 1988) in which instrumental deployment of science in the service of enclave growth is challenged.

The history of environmentalism in its preservationist mode suggests that the ideational shift which is just now beginning in the subcontinent is a necessary but not sufficient condition for the solution of second-order commons problems. The social and natural history of the Sundarbans demonstrates this point.

From "Reclamation" to Conservation to Preservation in the Sundarbans: Swamps into Wetlands

The history of the Sundarbans over the past 700 years has been intertwined with a central dynamic of human history: the pressure to carve new livelihoods and habitats from nature (Eaton 1990; Richards and Flint 1990; Bhattacharyya 1990). Transformations of the forests were not merely biological and physical, but were congruent with new forms of community organization and religious identification, property systems, formation of centralized political authority and new contentious cognitive framings of a natural system.

The etymology of Sundarbans itself suggests the ideational ambiguity which is central to preservation. "Sundarbans" may derive from either "beautiful forest" (sundara vana/bana) or, more likely, forest of sundri trees (Heriteria minor or H. fomes) (cf Yule and Burnell 1903:869-70). Sir William Hunter referred in the first official inventory of the area to "a sort of drowned land, covered with jungle, smitten by malaria and infested by wild beasts..." undergirded by a soil of "evil fertility" (Greenough 1987: 3,9). Fear more than beauty seems to have dominated the perceptions of local users of the forests; woodcutters regularly allocated a share of their produce to fakirs in return for propitiating forest deities. The idea that so dangerous and fecund a place could be endangered by human beings came only in the third quarter of the nineteenth century to colonial authorities, and not without contention in the colonial bureaucracy.

In contrast to forest policy in much of the region, dialogue on the Sunderbans has largely been an intra-elite affair, almost exclusively among state managers. Unlike other areas of the region, where statist claims to conservation and control evoked collective protest, the remaining (and shrinking) mangrove forests witnessed the cat-and-mouse game of individual non-compliance and evasion in the mode stressed by James Scott (1985).

The preservationist strain in official policy towards the Sundarbans is of relatively recent origin. Before the 1870's, the colonial state operated on a commercializing and revenue logic which recognized the value of controlled reclamation of "wasteland" by agricultural entrepreneurs (Presler 1987). That logic gave way incrementally to protection of a diminished core of forest, managed for sustainable yield and state revenues. The Sundarbans is now managed as a limited access commons, for what American environmental managers would call "multiple use" (logging, tourism, collection of forest products, fishing). Limited access proves difficult to maintain in practice because of the limited capacity of the local state. Conservation has not been completely effective, even in the diminished core, but the full tragedy implications of unlimited destruction by "ax and plow" have been averted by a ecologically benevolent but porous state.

The ecological and economic functions of the Sunderbans have been described as follows (Seidensticker and Hai 1983:71):

> "The vegetated tidelands of the Sunderbans are the only source of timber, firewood and other forest products in the region, but they also function as an essential habitat, nutrient producer, water purifier, nutrient and sediment trap, storm barrier, shore stabilizer, aesthetic attraction and energy storage unit. The drainage ways and estuaries serve as a transportation net, major fishing area, and nursery area for many coastal and ocean fisheries."

These contributions are at great perceptual distance from complaints of "pestilential exhalations" from "rotten jungle and muck" prevalent in colonial thinking. This evolution of perceptions is not unrelated to material processes, but is not entirely explained by them; early attitudes toward the Sundarbans evolved when people were scarce relative to jungles and forest products were much less valuable.

Although ecological systems are often thought of as producing (even if poorly perceived) "public goods," it is crucial to note their role in preventing public bads (though protection is of course a public good in theory, and indeed the archetypal one). The function of the Sunderbans as a "storm barrier" is critical given the colossal devastation of cyclonic storms in coastal Bengal. Complete destruction of the coastal forest wetlands would have rendered rural Bengalis even more insecure than is presently the case.

Precise estimation of the narrowly economic importance of the forest is difficult because of the prevalence of illegal extraction of products. Thomas Timberg (1987) notes that the forest is central to the newsprint and hardboard mills which meet domestic demand and provide export earnings for Bangladesh. The three match

factories of Bangladesh alone consume 320 tons of wood a day, much of it from the Sundarbans. Forest products from the Khulna district, mostly from the Sundarbans, were officially estimated in 1982-83 at 88,000 cubic meters of round timber excluding gewa (an abnormally low number, down from a more usual estimate of between 150,000 and 200,000 cubic meters), 113,000 cubic meters of gewa, 317,000 metric tons of firewood (sundri, etc.), 62,000 tons of golpata (for thatching), 4,500 tons of grass, 9.1 tons of fish, 232 tons of honey, 58 tons of beeswax, and 154,000 hantal leaves (for housing construction). These numbers are depressed by their social origin: they reflect only what the state can monitor.

The danger to the Sunderbans as an ecosystem arises from proximate sources which are quite familiar, but difficult to assess empirically; the ecologist's notion of a critical threshold is plausible but hard to identify. The easiest conflict to monitor and control, though not to reverse, is the bunding (embanking) imperative that historically allowed farmers to exclude salt water from paddies with a resulting decrease in salinity and soil quality which threatens the Sunderbans' flora (Cowan 1928: 203). Gathering of timber, forest products and fish may pose a threat to the carrying capacity of the system, but there are limitations to our understanding because of gaps in the social scientific and natural scientific literature. Much of the exploitation of the forests is illegal, and cannot be precisely measured. More importantly, we do not have a precise notion of the regenerative capacity of the forest, especially in the face of deteriorating hydrological conditions. Thus, even the problematic conservationist concept of "sustainable yield" of timber or fish is difficult to employ empirically.

New technologies and markets pose new threats to the Sunderbans; shrimp now constitute the second-largest source of foreign exchange for Bangladesh. Runoff of agricultural chemicals and pollution from pulp processing threaten the forest system to an extent that is not known. Pressures for export earnings from shrimp, pulp and timber are difficult to ignore at the regime level, given the chronic hard currency shortage, debt-servicing difficulties and position of Bangladesh in the international economy (Sobhan 1982; McCarthy 1987).

Distal pressures on the forest emerge from the incapacity of the international political system to resolve conflicts over fresh water as a common resource. The upstream Farakka barrage in India has certainly altered the downstream hydrology of Bangladesh in a negative fashion, but the precise effects on coastal forest ecology remain unknown. In addition, major internal alterations of the nation's hydrology, driven in part by external advice and aid, are occurring through massive embankment schemes (for flood control and drainage) which privilege rice over fish and rest on an uncertain empirical base in terms of ecological effects (Herring 1985; Rainboth, 1987). The Government of Bangladesh is engaged in

baseline data collection for a major simulation of the hydrological system, but the results will be a long time coming. Even more distal geological processes may threaten the existence of the coastal wetlands through dynamics beyond the control of any human institution (Snedaker 1987); the entire shelf is sinking.

Rules for collective access to and exclusion from the Sundarbans as a local commons are enforced by a state in conflict with private interests (some very powerful, some quite humble). The national state's proprietary claims entail restriction of use rights at odds with the interests of the local rentier state: the gaining of material rewards for granting selective expansion of use rights. The Sundarbans is an important part of a global commons not only as the well publicized home of the endangered Bengal tiger, but also because of the importance of its estuaries as breeding grounds for fish which inhabit the Bay of Bengal, the presence of unique flora and fauna and the importance of mangrove wetlands as an endangered ecological system worldwide. In this sense, the deterioration of the forest is an illustration of the perverse ecological consequences of sovereignty claims by nation states which inhabit a global commons; Leviathans often protect internal interests which run counter to global preservationist interests.

In a somewhat ironic twist, the same dependency relations which produce so supine a state vis-a-vis international actors and put pressure on environmental integrity in general have helped preserve the Sundarbans precisely because of its importance in conceptualizations of a global commons by powerful international actors. External flows constitute between 70 and 95 percent of the annual development expenditures of Bangladesh; external pressures for either export promotion or environmental preservation clearly make a large difference in regime-level politics of preservation.

At another level, the social process of restricting access to the Sunderbans entails a conflict between deep ecology and social ecology. Adherents to the values of deep ecology resist any human interference with the functioning of natural systems. Biological diversity takes precedence over conceptualizing, and managing, nature as a "resource," whether common or private. Social ecologists try to walk a fine line between interests of preservation of nature per se and the legitimate interests of human populations in exploiting their environment for livelihoods and habitats.

Whether that line can be maintained depends on the capability of the local state on the one hand and the carrying capacity of the natural system on the other. On both matters, a great deal more needs to be learned. Nevertheless, it seems clear that economic pressures emanating from above the national state because of its position in the global economy and social pressures emanating from below (through both pauperization and greed) threaten further

deterioration in the ecological integrity of the Sundarbans.

The conclusions from the Sundarbans case concern both the state as solution to ecologically defined commons dilemmas and the centrality of cognitive and evaluative framings of natural systems. To the extent that the Sundarbans has been preserved, it is because of a perceptual transition from "waste," and later exploitable resource, to endangered ecological zone worthy of protection — from open access commons to privatized property at the margins to a limited access common pool resource at the shrinking core — largely through the internal dialogue of state managers.

The state in this process must be conceptualized as both disarticulated and embedded. It is disarticulated by both horizontal and vertical divisions (ministries concerned with fish, agriculture, forests, tourism, planning and export promotion, for example, have different interests in environmental preservation, just as the local rentier state has material interests contrary to proclaimed central state policy). The national state is embedded in an international system which exhibits anarchy with regard to global commons dilemmas and exerts contradictory pressures for both hard currency earnings and environmentally sensitive policies. Both local and national states are embedded in society, from which come pressures for (mainly) relaxing environmental protections.

Politics and the Framing of Natural Systems

Conservation and preservation of the Sundarbans illustrate the importance of ideational shifts in the framing of "nature" and "natural resources." Even the most materialist of explanations of human behavior must acknowledge a perceptual screen between the objective world and "interests" and between interests and behavior (a cognitive map of what will happen if some particular course of action is followed). The Sundarbans could be (and has intermittently been) conceptualized as a dangerous and useless swamp, a source of potential revenue and rice, a natural resource to be conserved, or a rich and precarious wetland ecological system worthy of preservation (e.g., Bhattacharyya 1990; Presler 1987; Seidensticker and Hai 1983).

The complex relationships between the meaning systems and natural environments of South Asia remain to be established. The substantial literature on economic development and policy-oriented issues is only beginning (with the exception of the long-standing forestry management discourse) to deal with questions of how the values and meanings embedded in commercial, agricultural or industrial demands can be reconciled with conservationist and preservationist framings (e.g. Nadkarni 1987). In particular, roots of conceptualizations of the value of nature for itself are underdeveloped (but see Gold and Gujjar 1989).

The dominant instrumentalist discourse on natural systems has

enjoyed a privileged status due to its patronage by governments and agencies promoting a particular kind of growth-centered economic development. Central to this worldview is a conceptualization of nature as a bundle of "natural resources;" its value is measured by prices of products in markets. "Development" retains a core meaning of growth with sector- and class-differentiated costs and benefits; the familiar bifurcation between India and Bharat is reproduced in the seemingly unobjectionable framing of common interests in growth (a larger pie, a rising tide). Bandyopadhyay and Shiva reflect the oppositional view of the process (1988:1224):

> "The resource demand of development has led to the narrowing down of the natural resource base for the survival of the economically poor and powerless, either by direct transfer of resources away from basic needs or by destruction of the essential ecological process that ensure[s] renewability of the life supporting natural resources."

Despite the seemingly pragmatic and scientific language of policy studies, ineffective or counter-productive policy is often rooted in miscalculation of prevailing attitudes and interests. We know very little of a systematic nature about the sources of preservationist or commons-regarding values in the operative cultural traditions of South Asia, despite a now-hegemonic internal dialogue among environmentalists which posits equilibrium and eco-sensitivity to "subsistence-oriented" social groupings in India.[15]

Chhatrapati Singh (1986: 1) has argued that in the traditional Hindu conceptualization of nature as "a living organic force, like man, violence against nature constitutes adharma" ("injustice," or unrighteous action). But as in the case of all values, the behaviorally relevant meaning is situational, not given or primordial, and typically reflective of dialectical opposition in the same cultural framework. Despite celebration in the great tradition of dharma and ahimsa (nonviolence), Singh goes on to document systematic adharma vis-a-vis nature in which the benefits accrue to the state and powerful groups, the costs to "the rural poor, the tribals, and the flora and fauna of India (ibid)." Perceptions of value, like the consequences of action, are interest-mediated, and thus class-differentiated; the need for integration of phenomenological and political-economy perspectives is clear. As Lukacs noted (1923:234):

> "Nature is a societal category...whatever is held to be natural at any given stage of social development, however this nature is related to man [sic] and whatever form his involvement with it takes, i.e. nature's form, its content, its range and its objectivity are all socially conditioned."

Political-economic analysis is about the dynamics of interests within structures. Environmental degradation is driven by a complex interaction of individuals with structurally-generated

interests and powers mediated by incentives and constraints of a state. Public incentives and programs -- social forestry, flood control, chemical-intensive agriculture, manure-methane plants, export promotion of pulp and lumber, exchange rates, land reforms -- all affect the dynamics of ecological damage, preservation and regeneration. Public policy toward alleviation of rural poverty directly affects encroachment on the commons driven by subsistence pressures affecting marginal classes (e.g. Desai 1987). Population growth is not exogenously given, but responds to developmental and social welfare policy.

The configuration of interests in environmental protection and broader development policy does not, in theory, predict effective political action to head off catastrophes or continuous degradation. Political-administrative units, both international and sub-national, do not conform to the boundaries of ecological systems. Risks to a large ecosystem are difficult for individuals to perceive, being typically indirect, uncertain, distant and diffuse. Just as individuals systematically underinsure themselves against catastrophe, believing for understandable reasons that tragedies will befall people other than themselves, it is psychologically easier to underestimate the long-term consequences of multitudes of small acts against nature. The presence of threshold effects, or tipping points, in ecological damage reinforces this dynamic. On the other hand, the benefits of small acts against the environment are immediate and directly appropriated.

Whatever the general validity of the hierarchy-of-needs conceptualization, or the "post-material" values approach to politics in "post-industrial" societies, it does seem that environmental activism other than defensive reactions to protect immediate individual material benefits is concentrated in classes not engaged in a daily struggle for security and survival.[16] Both secure environmentalists and threatened populations encounter significant obstacles in state and commercial interests committed to the instrumentalist view of the natural sphere. Real world Leviathans are engaged in political conflict; despite structural pressures for growth-generating policy, which dominate, in specific instances states in the subcontinent have pressed environmentalist concerns over the objections of well organized local interests.

By way of illustration, we may schematically consider two major environmental movements in recent Indian experience which anchor ends of the continuum. In the Chipko (tree-hugging) movement in North India, local pressure was generated to prevent commercial exploitation of a collective economic resource -- the forest. Local democratic expression of interest-driven local values coincided with environmental protection, if not preservation.[17] In the Silent Valley movement in South India (Kerala), the opposite dynamics occurred. Local mobilization was for development of a hydroelectric project which various elite preservationist groups, national and

international, saw as a threat to a supposedly pristine and unique rain forest.

In the Chipko movement, rural people, especially women, have banded themselves around trees to protect them from destruction by government and commercial agencies. An explicit concern of the forest protesters was that "protection" of the forest by the state was a cruel hoax: "They have swept the jungle clean" (in Omvedt 1987:29-30). The movement was a contemporary incidence of a long-standing conflict between competing political interests, and behind them, competing world views (Guha 1989). One position reflects those interests associated with an aggressive cash economy; the other, those associated with a rural subsistence economy. While the former emphasizes commercially valuable trees such as chir pine, teak, and eucalyptus, the rural economy is dependent upon an older, indigenous forest whose biomass products have supplied rural society with most of its household needs -- fuel, fodder, fertilizer, building materials, herbs and clothing (Agarwal 1985).

In the "Silent Valley"[18] controversy, a similar antinomy of perceptions and values was manifest. The proposal was grounded in as strong a developmental case as one is likely to encounter. Damming the Kantipuzha river would produce hydroelectric power, irrigation (of 10000 hectares) for enhanced agricultural production, and prevent floods and droughts. The project was long standing, identified as early as 1920; it was formally proposed in 1958 by the communist ministry as a technically optimal solution; the valley is very narrow, creating a very high ratio of electricdity output to construction cost. Moreover, the area is historically depressed, characterized by severe land pressure, unemployment, and industrial backwardness (as symbolized by electricity use per capita: little more than one-third the state's average, one-fourth the nation's average, and less than 1/300 the North American level).

The plan for damming the Kantipuzha river and flooding its valley represented to local organized interests only jobs, irrigation water, hydroelectric power and lucrative contracts. Oppostion came from Delhi (which proved to be politically significant) in a recommendation from the Task Force of the National Committee for Environmental Planning and Coordination, which was itself an outgrowth of the very prominent role played by Indira Gandhi in the path-breaking international conference on the global environment in Stockholm in 1972. The task force rooted its opposition in the precipitious decline of Indian forests and projected climatological consequences.

Though the project had been opposed by the Kerala Forestry Research Institute, <u>local</u> opposition to the dam really began with a report of the Kerala Shastra Sahitya Parishad, the lead organization for the leftist "science for the people" movement which opposed technocratic dominance in development strategy and

argued for local knowledge and local participation in issues usually reserved for technocrats. Their report concluded that silent valley had to be spared the dam because it represented 50 million years of undisturbed evolution; a primeval rain forest, the last of its kind in the western ghats; cytological evidence of continuing rapid speciation and uncharted species; some 60 endangered species, principally the lion-tailed macaque, and the scientific puzzle of the absence of cicadas, which in one etymolgical geneology explained the "silent" designation. They concurred with scientists from the center on climatological effects of deforestation and challenged the developmentalist logic on its own terms.

Energy use in Malabar was indeed very low, and reflective of the area's industrial backwardness, but the preservationists argued that the state already had surplus generating capacity and exported 60% of its electricity production, as it did most other valuable products; the problem, as with exported food, was less in aggregate production than in distribution of existing production (Parameswaran 1979). Secondly, most jobs generated would be short term and would expand environmental damage (the effect of 5,000 families scavenging for forage for livestock and firewood and the effect of cutting roads into a virgin forest). Local opposition was intense, but limited to scientists, upper-middle class intellectuals and, most powerfully, students.

The counter-attack on the preservationists was broad-based and powerful. As in many environmental controversies, the proponents mobilized their own experts, who made a telling case for the dam. In particualar, what are the alternatives for increased energy needs of the population? Wood, the dominant fuel source in rural India, threatened tremendous environmental damage from felling forests, particulate matter, and contribution to the greenhouse effect. Coal-fired electric generation would consume something like 3,600 tons per day for same capacity (120 MW), producing 1,440 tons of ash per day and acid rain (which is also a threat to forests). There would be environmental costs in shipping coal long distances, as well as the destructiveness of intensified coal mining. Nuclear energy has its own potential costs environmentally.[19] As in the third principle of ecology, there is no free lunch (only trade-offs).

Well organized proponents of the dam — spearheaded by the Kerala State Electricity Board and engineers' unions — won the definitional struggle politically; the State legislature debated an issue of "man versus monkey" as well as central state vs. local interests and essentially voted against the monkeys and central state. Significant internationalist pressure for saving the valley was widely interpreted in the state as evidence that powerful neo-colonialist forces wanted to prevent the industrial development of the periphery. The narrow escape of "Silent Valley" from inundation resulted from a peculiar niche in India's federal political system

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which allowed a central government adopting the environmentalists' meaning and value system to override local democracy.[20]

These two polar cases make several points about the political economy of environmental protection. First, there is no institutional guarantee of substantive outcomes friendly to the environment. Local democracy and decentralization have become totems of development literature, and clearly can be legitimized on other grounds. But when livelihood competes with preservationist values, as in the Silent Valley case, local democracy exacerbates pressures for despoliation. Malabar is a neglected area within a neglected state. Even after significant land reforms, underdevelopment and destitution characterize a high percentage of the population (Herring 1990: Chapter 7). Moreover, Kerala is a state of unusually high literacy and advanced politicization; popular interests are typically mobilized, often in a militant fashion. Had Kerala been a nation-state in 1980, Silent Valley would have been drowned.

Secondly, local democracy is more likely to be a force for conservation in the social ecology sense rather than preservation in the deep ecology sense. The Chipko participants were protecting their own livelihoods; the Silent Valley project threatened no existing livelihoods[21] and promised to generate 15,000 new ones. Recent moves toward decentralization and popular control of local administration in Bangladesh (Blair 1987; Herring 1985) can be expected to put more rather than less stress on the Sunderbans. In the absence of a profound ideational shift in the conceptualization of nature, the potential contradiction between democratic and preservationist values poses one of the most serious dilemmas of political practice for the preservationist agenda.

Interests and norms come together in effective environmental protection, typically through a two-stage movement in moral economy and public law. First, nature as a commons must be recognized as a collective good. Preservation must often proceed in conflict with immediate interests, and thus depends on an argument for higher-order values that are poorly received, whether because of ordinary interest politics or for lack of acceptance of imperatives generated by the science of ecology. Changes in public law and the ceaseless struggle for implementation must likewise be understood as a dynamic intersection of interests, power and values. The issues of "political will" and popular understanding are thus dialectically related; changes in environmental consciousness must incorporate popular meanings even as effective protection must sometimes transcend them.

The (admittedly improbable) best-case scenario for South Asia's environment is a state strong enough to resist despoliation pressures rooted in greed and short-term horizons and yet responsive enough to find creative solutions to pervasive destitution. The implication is a development strategy far more

egalitarian in politics and economics than those currently in place, though the political base of such redirection under existing conditions is difficult to conjure.

Contextualizing the Politics of Nature

The argument of this essay has been that the local-society centering of analysis in the "tragedy-of-the-commons" vein, in addition to its exclusive and narrow emphasis on material interests, fails to encompass the full range of empirical forces in the dynamics of environmental degradation, protection and regeneration. In common usage, the commons connotes a physical space of open or collectively controlled access, either as res nullius or as community-defined property. The classical commons dilemma applies only to the first of these categories (Runge 1986) in a strict sense, though pressures of population growth and state policy may present commons dilemmas for local societies by placing insurmountable pressure on local property rules rationing access.

The concept of the commons must be broadened significantly to capture the wide range of interests important to analysis of the intersection of social and natural systems. Though a particular commons may be bounded physical space, equally critical questions surround the commons as analytical arena and ideological force. Whether as the residual from claims of private property or from common practice, spaces have been defined historically as legitimate use objects of bounded communities. As early as the Laws of Manu, it was recognized that local commons overlap; increasing human population aggravates the boundary problem, but an ecological understanding makes it clear that no commons is an island unto itself.

Overlapping boundaries in turn imply the state as mediating agent. State-centric developmental processes accentuate the critical role of the state, which began with novel proprietary claims of colonial rule but was presaged by vedic, puranic and state-craft literature of India long before colonial rule (Raghunandan 1987:545). For second-order commons dilemmas, the overlap is continuous and ubiquitous, whether or not these linkage-dependencies are locally perceived.

As a consequence of Polanyi's "great transformation," local commons have been the object of pressure for privatization and centralization of control. Contrary to Hardin's logic, privatization of the commons has not solved commons dilemmas, even of the common sort, and certainly not of the second-order sort. The inexorable character of Hardin's logic is belied by the numerous historical and contemporary examples of institutional rules for conservation of local commons. Nevertheless, such commons solutions in the form of rationing rules as exist will hold only within boundary conditions; destitution, greed and statist developmentalism put almost inexorable pressure on local rules

regulating the commons. Both destitution and greed are in turn related to rules of states regarding natural resource policy and development strategy.

The state also enters the local commons problematic because local social delineation of a commons inevitably involves rules of inclusion and exclusion from opportunities, presenting the basis for conflict within and between social groupings. In modern political systems, maintenance of local commons depends on nodes of public authority at higher levels; benign neglect is a minimal condition.

States respond to overlapping and second-order commons dilemmas with exercise of eminent domain. Yet the creation of "public" property resolves little, since new political conflicts around the issue of defining the public and determining its collective "interests" are structurally inevitable. Reserved forest lands are a commons in not being private property, but the legal definition of reservation for a public purpose merely introduces a conflict between the state's historically contingent claims and those of inhabitants and users of forests, as well as conflicts between the relative values of hard currency earnings, employment in the timber industry, international competitiveness of timber firms, and ecological integrity of forests.

These issues are obviously not restricted to poor nations; serious disputes in the Pacific Northwest of the United States around old-growth forests follow exactly this logic.[22] Delineating a common purpose, institutionalizing management for a common good, and treatment of claims akin to common-law use rights define antagonists in political space in which the commons is both the object and arena of contest.

In privatization ideology, the tragedy of the commons constitutes evidence for the superiority of private-property systems for the conservation of "natural resources." For what we might term "traditionalists" (e.g. Klee 1980), common interests in conservation of the environment in pre-market communities provide a store of techniques and an ideology of non-market rationality in which social appeals for preservation or regeneration of the commons can be grounded. The radical content of the commons ideological framework is the direct confrontation with the inevitability or desirability of markets as arbiters of the future of natural and social systems. Grounded in pre-market or non-market conceptualizations of nature and society, the commons perspective asserts the legitimacy of extra-market claims on the dispensation of the surface of the planet.

As in the case of an integrated global economic system, the boundary problems in dealing with global environmental interests produce the inevitable tension between authority and sovereignty. At the international level, practices such as the Montreal protocol

on CFC's suggest that mechanisms for cooperation may be more readily available on the environmental dimension than on others involving sovereignty claims. International practice is establishing, whatever the normative case, standing for those far removed from particular environments. The argument for preservation of biological diversity is rooted in a notion of interest which is planetary and species-wide. Conventions restricting trade in products of endangered species and rainforest timber, as well as production of CFCs, recognize a de facto global interest in preservation.

It is only by this enlargement of the legitimate social arena by appeal to a global commons that North Americans can presume to have a stake in the fate of Bengal's tigers or the Amazon basin. Similarly, debt-equity swaps in which nature is the equity at stake provide both the recognition of global interests in national commons and a mechanism for conservation/preservation. Reciprocally, recognition of the global commons legitimates interests of inhabitants of poor countries in the policies and practices of rich countries. Rights and obligations in the preservation of a global commons raise some genuinely new issues in international politics, but in a larger sense reproduce long-standing conflicts between sovereignty and collective rationality.

The tragedy paradigm formalizes the popular caution: that which is everyone's concern is no one's concern (a mischief begun by Aristotle, but taken out of his context of familial relations). While not inexorable, the tragedy's logic of uncoordinated pursuit of interests threatens that which is a common interest. Recognition of the potential tragedy inherent in this logic is the grounds for institutional innovation and new political practice from the local to international levels. As neither of the traditional solutions -- Leviathan and privatization -- guarantees conservation, much less preservation, the well-worn tragedy metaphor is a vehicle for energizing a broader discussion of institutional and evaluative alternatives.

At the level of social learning and institutional innovation, there is a rich store of experience (cf Feeny et al. 1990). But second-order commons issues are typically beyond the scope of bounded communities; their global form in particular raises not only a question of institutions, but also of meaning systems. Economics and ecology derive from a common etymological root; oikos is both home and household. Aristotle's household was in effect a firm; the laws (nomos) of household management, could constitute the subject for a science of economics. But oikos is also home, and the home of each species is dependent on others in a natural pattern; this pattern, discernible by reason (logos), is likewise the subject of a science of ecology. That one species attained that capacity for subjugation of others through technological change and enhanced reproductive capacity made the home of all species dependent on the management techniques of individual and collective

households of humans.

Species mastery then raises the question of contradictions between economics and ecology (e.g. N. Singh 1976). In both the dominant and Marxian traditions of economics, nature attains value insofar as it can be transformed into commodities for use and exchange. Through some reconceptualization of nature as an exhaustible, hence scarce, stock, and expanded conceptualization of externalities, social ecological values can be used to refine the market logic of value residing only in factors of production and products (e.g. Desai 1987). Integration of market logic with a deep ecological perspective remains problematic, dependent on a reevaluation of the concept of value itself. Since laws of ecology are real and not mutable, the socially and historically contingent "laws" of economics must be recognized as such. In particular, second-order commons dilemmas necessitate a new epistemology of value as well as a new metric for comparison.

Though the impact of environmental movements in India in aggregate terms has been meager, and largely defensive, the intellectual challenge is profound. Bandyopadhyay and Shiva (1988:1225) bravely conclude that ecology movements in India "are redefining the concepts of economic values, of technical efficiency, of scientific rationality -- they are creating a new economics for a new civilization."

The Politics of Nature

This essay began with a suggestion that in dominant conceptualizations of politics, it is puzzling that nature for itself ever wins. To the extent that the preservationist ideology has power under certain conditions, it seems to be because of special features of the object of politics, specifically:

1. Irreversibility: Because "nature bats last," policies lack the corrigible character of spending priorities or judicial reform. Though literal collapse of ecological systems is rare, alterations of systems forfeit whole elements of the global gene pool at an alarming rate.

2. Threshold effects or "tipping points." The effects of environmental damage are cumulative and may not become apparent until some threshold is crossed, constituting irreversible damage. This possibility introduces an essentially technical discourse which is conflictual, mediated by epistemic communities, but powerful, precisely because of the finality of consequences.

These two characteristics -- irreversibility and imperceptible tipping points -- combine to produce the specter of extreme risk, with no reliable way for folk to technical claims. This configurtation means that epistemic communities are of special importance; the analogy to strategic doctrine and defense policy

should be apparent. Epistemic communities are both international in scope and present themselves as disinterested; the ideology of science counts. More preservationist policy (leaving aside enforcement) appears than would be consistent with predictions based on aggregation of material interests.

There is however a countervailing politics of risk. Individuals systematically underinsure themselves, believing that catastrophe will always befall someone else. This problem in the politics of nature is exaccerbated by the distance of victims in time and space; hence defensive reactions are easier to mobilize than are preservationist movements rooted in deep ecology. In both forms of mobilization and counter-mobilization, the conditions for symbolic politics are especially apparent: epistemic ambiguity, emotionally charged valence issues, fear and uncertainity surrounding extreme risk.

3. Counterfinality: one cannot assume that well-meaning and self-interested individual behavior in accord with interests will produce socially optimal outcomes. The political market-place is no more certain in its production of protection of the natural world than is the economic. The metaphor of the tragedy of the commons is powerful as a legitimating ideology for overarching political authority, but perceived interests of states and catering to material interests of dominant elements of society may render state intervention as much a part of the problem as of the solution.

4. Interdependence of non-obvious, often unknown, natural processes. The first principle of ecology is that everything is connected to everything else. New politics are produced by the incongruity of boundaries within which ecological dynamics operate and units of political or administrative units or arenas. Interdependence presents a new challenges not only for political praxis, but also for social analysis, from the local level to the global.

Precisely because of the location of ecology on the learning curve of the species, the politics of nature internationally evokes understandable resistence in the periphery of the global system; poor nations argue that advanced nations are engaged in a politics of "do as we say, not as we did" which resonates with their experience on issues of trade protection and state intervention generally. The approach to global tipping points in regard to ozone depletion, climate change and deforestation was clearly a function of low (internal) cost industrialization without constraints as practiced in the OECD countries, which have only recently discovered the principles of limits and interdependence, both of natural systems and of national policies on a global level.

5. The reality of species mastery: This reality creates resonance of preservationist politics with ethics of special responsibility entailed in species mastery, represented in the

American tradition by the notion of "stewardship" and in Gandhian ideology as "trusteeship." That an ethics of species responsibility could join a politics of esthetics of nature is reinforced by the emergence of a large section of society in both rich and poor nations of people whose basic material needs on the Maslow hierarchy of needs have been met and are free to become interested in a politics of culture and identity revolving around "who we are and what we are worth" (in Lloyd Rudolph's formulation).

These special conditions do not make the politics of nature unique, but do account for some of its special characteristics. A central lesson from this investigation is that dimensionality of human behavior is vital to evaluation of contending theoretical positions on the possibility of an overarching theory of rational choice as the touchstone of progress in the social sciences. In terms of the methodolgical base and theoretical foundations of the tragedy of the commons literature, the thin theory of rationality is inadequate, but still telling, often in counterintuitive ways (as in, e.g. Wade 1988). But even in the most materialist conceptualizations of intersts, cognitive mediation is crucial, first in definition of interest, and more importantly, of mediation between interest and behavior: given that x is desirable, should I do y or z? That mediation turns on the selecitve approriation and deployment of experiences, analogies and beliefs rooted in a folk theory of politics in interaction with a technical discourse which resists independent evaluation -- a theory of politics which remains an excercize more of techne than episteme.[23]

Endnotes

1. This is not to say that self-destructive individual behavior, extensively documented in psychology and confirmed by everyday experience, whether conscious (as in martyrdom) or unconscious (as in neurosis), is unimportant, but rather that in at least many aggregate political phenomena, behavior in accord with safeguarding and improving individual interests is dominant. This perception does not ignore the telling arguments of Sen (1978) and Mansbridge (1990: 3-22), but rather follows the most common assumption in connecting interests to politics. Sections of the argument which follows, particularly on the Sundarbans, follow closely my "Rethinking the Commons," Agriculture and Human Values 7:2 (Spring 1990). The paper is a revised version of a presentation at the Center for Population and Development Studies, Harvard University, March, 1991.

2. The Sundarbans, bridging India and Bangladesh, is one of the last deltaic mangrove forest eco-systems in Asia, the rest having succumbed to rice agriculture. Its current extent is approximately 10,000 square kilometers, or about three times the size of the state of Rhode Island; two centuries ago, the forest was double its present size. The area may be familiar to many indirectly as the home of the endangered Bengal tiger; international efforts through Project Tiger have focused attention on deterioration of the habitat. Because of the familiar problem of unstandardized transliterations (in this case from the Bengali), the word is variously spelled. Questions of etymology further complicate spelling. Yule and Burnell (1903:869) use sunderbunds, reflecting their belief that the origin is in bund, ie "mound" or "embankment" (created by tidal action and sedimentation) rather than "forest" (ban/van). Derivations of sunder/sundar are likewise disputed, ranging from sundara ("beautiful") to sundari (the Bengali name of the mangrove, Heriteria minor, sometimes H. fomes) to chandra ("moon" reflecting again the tidal-island theory) to chandra-dip ban (from the name of a large zamindari estate) to chanda-bhanda (the name of an earlier tribe of salt-makers mentioned on a copper tablet dating from A.D. 1136). The "beautiful forest" notion is probably a retroformation, created by current valuations of forests under a pervasive ecological romanticism. Indigenous perceptions were closer to jungal than ban (at least from the implications of Bhattacharyya's 1990 piece). Though the forest system bridges two nations, about 80 percent of the area is in contemporary Bangladesh.

3. The logic of collective action is ambiguous on "small" aggregates. Villages may have more potential for collective action than much smaller aggregates in industrial society because of a) the greater continuity of relationships over time; b) the greater information about the character of other individuals; c) the multidimensionality of relationships, such that "side-payments" and sanctions can be managed in spheres other than that to which collective action directly applies.

4. There is a small puzzle here, which we may note in passing: why do villages seem capable throughout India (and in much of the world) of collective action in cases where there are arguably no material benefits involved? That is, collective religious observances are organized even in villages which fail to act collectively for production bonuses. A materialist explanation can be conjured, but it is clearly an act of conjuring: local belief systems hold that appeasing or pleasing some deity is likely to have greater material benefits than rationally using water.

5. Scattered exceptions may be found in the works of Marx, for example in the discussion of agriculture in Capital Vol I. Raghunandan (1987:546) points to exceptions in Engels' "Dialectics of Nature." Nevertheless, the weight of the Marxian tradition is clearly as indicated in the text.

6. The moral economy tradition is something of a totem in peasant studies. It opposes "moral" not to immoral but to amoral; that is, there exist social formations in which economic relations and outcomes are judged not by canons of markets, but by socially constructed notions of right and wrong, acceptable, unacceptable and optimal. The roots in Polanyi (1944) are clear; the term is usually associated with James Scott's early work. For the briefest possible summary, and a comparison to a leading critic's theoretical alternative, see Herring (1980).

7. Mohanty's (1987) powerful novel of forest conflict and exploitation illustrates peasant ambivalence concerning the opposed values of forest preservation and the scramble for subsistence in the context of exploitation by state regulators and fellow villagers points to the simultaneous operation of contradictory values and practices.

8. The history of the Sundarbans suggests other limits rooted in territoriality. Incursion on the Sunderbans might well have reached a natural limit independently of colonial restrictions as costs of reclamation accelerated relative to benefits as the soil became progressively more saline and the bunding more difficult, but the fate of other deltaic forests in Asia do not suggest optimism. As timber, fuel and rice prices escalated over time (Richards and Flint, 1987), clearing of more marginal land would have become proportionately more attractive.

9. The lives of Islamic saints on the Sundarbans frontier became "metaphors for the union of agriculture and religion:" the struggle against nature and against the infidels became intertwined (Eaton 1990:8). Eaton notes that in the belief systems of local Muslims, "Allah created Adam out of the earth in order that he might possess the earth and be its master, or malik. In the Bengali version of creation Adam exercised his mastery of the earth by farming it." There is set in motion here one of the central conflicts in the value problematic of conservation and preservation: the meaning of mastery by one species over the fate of all others.

10. Raghunandan (1987:545) notes the case of a ninth-century Pallava king who was given the honorific Kaduvetti (one who clears forests) for presiding over the rapid conversion of forests to cultivated land.

11. See the Special Issue of Agriculture and Human Values VII:2 (Spring 1990) for a full discussion, especially the contributions by Richards and Flint and Bhattacharyya.

12. Kautilya argues in the Artha Sastra that "the means of ensuring the pursuit of philosophy, the three Vedas and economics is the Rod [wielded by the King]; its administration constitutes the science of politics...On it is dependent the orderly maintenance of worldly life...If not used, it gives rise to the law of the fishes. For the stronger swallows the weak in the absence of the wielder of the Rod." (From Robinson, 1988: preface). The doctrine of matsya-nyaya, which Robinson calls the "law of the fishes," implies that in a state of nature, anarchy prevails, providing the justification for a strong and interventionist state. So strongly is the state associated with "the Rod" (danda) that Kautilya calls the science of politics, or kingship, dandaniti (a useful corrective rooted in realism to the more usual rajniti).

13. Indira Gandhi once said that "poverty is the worst polluter" (Omvedt 1987:29).

14. On the importance of poverty-alleviation programs generally for environmental protection, Desai, 1987. Land reforms in India have had in some cases unintended negative environmental impact, since reserves protected by "feudal" elites for hunting were divided among agriculturalists or deeded to a more obliging state. For example, see Centre for Science and Environment, 1986:8-9.

15. For examples, see Raghunandan (1987). Bandyopadhyay and Shiva (1988:1223) state characteristically: "A characteristic of the Indian civilization has been its sensitivity to the natural ecosystems." Bina Agarwal (1990) appropriately disaggregates "Indian civilization" to locate environmental consciousness in specific social categories (hill people, women) as a consequence of interests generated by position in the division of labor within productive and reproductive systems.

16. Friesema and Culhane (19??) demonstrate that the largest number of legal actions initiated on behalf of the environment in the United States comes not from the peak preservationist groups, but from local communities rooted in the NIMBY (not in my backyard) persuasion.

17. It is unclear how preservationist movements such as Chipko are. Agarwal (1990) locates the preservationist strand of discourse in women, as opposed to men, who show greater interest in the lures of commercial use and the cash economy. But even forest-friendly uses of forests may not be preservationist in the sense of deep ecology. At a minimum, invasive varieties of flora are entailed in uses of forests by humans and domesticated animals. North American wetlands, to give one example, have been fundamentally altered by the invasive loosestrife which takes over ecological niches from indigenous varieties. Spartina grass transferred accidentally by ships from their native niche in New England are destroying salt marshes in the Pacific Northwest, and in the process destroying the oyster industry (NYT 3-7-91). Fragile ecosystems often cannot

bear even the innocent trampling of human feet, much less domesticated animals.

18. "Silent Valley" privileges the ecologists' meaning system. The valley presented a scientific puzzle because of the anomalous absence of cicadas -- hence silence. An alternative etymological genealogy implicitly challenged the scientific discourse: "silent valley was held to be a corruption in colonial mispronunciation of Syranda vana, the woods of a legendary princess.

19. For a discussion of the political construction of the technical arguments for and against the project, see Nayar (1980); Vijayachandran (1980).

18. This brief account is based on press reports, interviews with activists on both sides of the conflict, local officials and proceedings of the Kerala Legislative Assembly, in addition to sources cited in the text. In the debates surrounding the Silent Valley protection bill in the Kerala legislative assembly, the word "ecology" was used and then challenged as to meaning. No one could give an answer, and it was finally decided after consultation with a dictionary that "pollution" was at issue. Since the hydroelectric project threatened no pollution, the deep ecology position of the Kerala Sastra Sahitya Parishad was effectively delegitimized in the view of the legislators. I was working in the district in question at the time and can confirm that local views were equally unaffected by ecological values in local organizations pressing for the dam. The perception that ecological integrity was a "luxury," unaffordable in poor societies, as expressed in the legislature, is a familiar theme in "North-South" debates on the global environment. The interest of Delhi in increasing electric power production was clear, given the production bottlenecks and discontent -- both urban and rural -- at power outages. But the Kerala project was small in terms of national energy consumption and Indira Gandhi, returned to power in 1980, had no political problem in embarrassing the newly-installed communist government of Kerala (which had long promised the project).

21. A partial exception was a small group of people involved in illegal drug cultivation near the valley. Natural reserves have often been the cover for uncontrolled and anti-social elements, a point explicit in the colonial authorities' interests in converting the Sundarbans to peasant fields.

22. As in the "Silent Valley" case, the mobilization of symbols around preservationist values boomeranged politically. The designation of the spotted owl as a threatened species under the Endangered Species Act saved some old growth forest from destruction, but simultaneously engendered a human needs vs. birds construction of the politics. Bumper stickers reading "Save a Lumberjack, Shoot an Owl" or "Lumberjacks are an Endangered Species" symbolized the growth-preservation trade-off as perceived

by local loggers. Approximately 6 million acres are currently under federal and state protection, at an estimated cost of between 20,000 and 100,000 jobs in the timber industry.

23. For a useful discussion of the distinction, drawing on Marglin, though in a different context, see Agarwal 1990:24.

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SELF-ORGANISING COMMUNITIES: THE INSTITUTIONAL ROOTS OF COLONIAL RURAL PUNJAB

An Attempt to Inquire Into the Phenomenology of Nature and Institutions

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> "I am a firm believer that without speculation there is no good and original observation."
> Charles Darwin, in a letter to A. R. Wallace, 1857
> (Brent, 1981: 409).

This is a speculative effort to seek answers for contemporary questions from a slice of history -- the colonial past. For this purpose we put forward three propositions. They only serve as a framework for the paper.

First, common property resources did not become an issue in colonial India. The British were familiar with the issue of common lands in the structural transformation of manorial agricultural relations in England.[1] They were also conscious of the Irish land question. They sensed a structure of relationships in the rural areas which could best be described as "Genossenschaften." Consequently they were aware of communal foundations of property in the Punjab. Nevertheless, they attempted to establish a set of property rights based on the then existing collective foundations as a matter of fiscal expediency and from notions of legal private property rights.

Second, common property resources are an issue *now*. The post-independence Government of India was aware of the importance of communal organisations in the rural areas but nevertheless legislated against exclusive ownership of collective property in favour of "land to the tiller of the soil," in the name of social justice.

Third, collective action is an associated part of rural history in the northern states of India. Here are some examples from just one territory -- Delhi's villages have organised:

- In 1857 to rebel against British rule, and were consequently arrested and a number from Punjab Khor were even accorded capital punishment;
- In 1911, to protest the British Government's move to acquire common land from the village of Ber Sarai, and they succeeded;
- In 1977, to protest and prevent the Delhi Administration's lease of common lands to the landless from the villages in the Bisagama or the Kanjhawla cluster;

- In 1986, to organise a huge gathering of clan members (Vishal Jat Sammelan) in order to activate opinion against Government policy to acquire village common lands for purposes of urbanisation;
- In 1990, to organise a political battle with the State Government of Haryana in the Chaubisi a cluster of 24 villages;
- And finally again in 1990, to blockade supplies of food to Delhi in protest against the Mandal Commission Report.

In the context of this framework I wish to seek answers to some questions.

- How do we explain the survival of *common lands* in the hinterland of Delhi in the middle of the twentieth century when all the factors operating in the area were parallel to those which explained their disappearance elsewhere in the Punjab?
- Can we find an explanation to the contemporary uprising against Government effort to privatise common lands in the hinterland of Delhi and Haryana as an effort to preserve a cultural tradition of collective action?
- Was the cultural history of the region one of strong traditions of self-organisation and self-governance? If so, what were these traditions?
- How do these affect the ecology of human habitation?

In 1977, a group of farmers from the village of Kanjhawla, in North West Delhi, protested the renewal of the lease by the Delhi Administration, of about 123 acres from their common lands. The village lands in the cluster, of which Kanjhawla is the head village, belong mainly to a particular clan of the Jats. Similar clusters elsewhere in the region indicate the existence of common property resources and proof of joint action. It offers a window to examine the ways in which rural collectivities organised institutions of both individual and joint property rights and further how they conceptualised rules to govern that arrangement.

The historical roots of these rural formations in Punjab lay in their perception of the ecological niche in which they found themselves and their ability to organise their lives by institutions of self-governance. Self-organisation will be understood to mean the manner in which the pattern of land-use and land-control was set up by diverse communities in relationships of interdependence and supplementarity. Self-governance will signify the collective capacity of these communities to conceptualise and support a rule-

ordered set of relationships, and the flexibility to modify those arrangements through time. We will deal with the first in this paper.

I address these questions in an endeavour to recognise the critical importance of human *perception* in the world of reality and of *conception* in the realm of ideas. In the real world, diverse conceptions of an eco-system create human relationships which pattern property rights and institutions of collective action in order to meet the requirements of a particular ecological milieu. At another level, in the world of concepts, "there are diverse contingencies in human artisanship (and these) are interactive such that the artifactual realm created by human artisanship is configurational in character, complexly nested in one another (E. Ostrom, 1986; Gardner and E. Ostrom, 1991). This interactive character means that narrowly defined artisanal activities become imbedded in institutional and epistemic orderings" (V. Ostrom, 1991: 20).

Further, we realise the potential for conflict both within the realms of perception in the real world and in that of the conceptual one. "The task for fallible creatures at both the conceptual and activity levels is to work out complementarities without presuming to know the ultimate truth" (V. Ostrom, 1991: 19). This will be our endeavour.

It is our purpose to analyse long-term changes over a century and a half in institutions of collective ownership and management of common property resources in the complex eco-system of British Punjab which comprised all the major <u>doabs</u> of northern India. This will hopefully indicate the reasons for both continuity and change in the status of common lands in the Punjab, the theme of our enquiry.

We narrow our focus on the survival of the village commons (<u>shamilat-deh</u>).[2] The commons were a category of land-use and property of the agri-pastoral system in the Punjab so we will not consider it as an isolated phenomenon but as part of two major changes in Punjab agriculture in the nineteenth and early twentieth century. The first was a transition from a system of "extensive" cultivation with cultivable "waste" or (<u>banjar kadim</u>)

long fallows, for grazing, to one of intensive land-use for the arable, and short fallows (banjar jadid) for pastoral purposes. The second change was a decline in joint control exercised by the malikan-deh or the village proprietary or governing body over village management in the course of the nineteenth century.

The main thrust of this paper will be to indicate that the "Village Communities" of the Punjab were self-organised units of social and economic order which the British "discovered" in the nineteenth century, to their great convenience for purposes of revenue collection. This genre of social order was rooted in the authority exercised by the hierarchical arrangements within these associations of people with sets of preferences and shared values which were preserved by institutions of sanctioning and monitoring.

The organisation of communal control over resources in early nineteenth century had been likened by Maine (1881) to the Teutonic Communities of Western Europe[3]; British settlement officers saw in the "casting of lots" to distribute village land, a tradition belonging to the era of the Old Testament. But, it is necessary to emphasise that joint action was not limited to location-fixed communities only.[4] The vast inter-riverine areas of the six rivers[5] of the Punjab were occupied by people and rulers from diverse cultural denominations. We presume there was a continuous situation of *flux*, at the time of the British take-over in early nineteenth century.[6] Survival in the eco-system required flexible strategies to combat uncertainties and risks generated by: (a) a dynamic, diverse and sometimes harsh geo-physical circumstance and (b) the unpredictable and possibly hostile behaviour of other groups (including rulers) who could stake a share in the same class of resources. Such uncertainty was compounded by natural calamities like famines and endemic and epidemic diseases keeping demographic pressure low. These circumstances were conducive to individuals taking to group formations. In a collective situation, the individual could economise on transaction costs required to "bargain" for a land-use and ownership consonant with the requirements of a large number of "others" whether similar or dissimilar.

Communities then became location-specific in a large part of the Punjab only when they were "settled" by the British in the course of the second half of the nineteenth century on the lines of the pre-British existing village organisations. It meant, therefore, that the communities were henceforward "involuntary" associations being defined and bounded by British revenue records. They could no longer re-group themselves in other locations without recognition and authorisation from the Government. In other words, group formation was not voluntary any longer. This was particularly the case of the semi-nomadic pastoralist groups.

I want to stress that the identification of communities could be ascertained not by just the physical location of the village. Rather, a community could be located according to the extent to which they upheld similar preferences and values on the one hand and a cultural bias which enabled a certain consensus in matters of regulating a particular way of life.

In the case of an arable people, group control over *land* was critical and by the same token the ability to exclude others from using or usurping it.[7] The sedentary arable community controlled the cultivated land by "continuous use" or customary usage (or what would be "prescriptive" rights by analogy to legal or statutory traditions) to prevent outsiders from encroaching. Transfer of a share in the village land to an outsider was vetoed.

The pastoralists' major asset was cattle, which are mobile, and hence continuous use of the *same* land was not crucial however an informal sphere of user control over long range became expedient. Hence, a complementary relationship could be established between the sedentary arable group and the herders. The pastoralists' seasonal use of the land could be accommodated by transhumant arrangements too and a relationship of reciprocity could be established with the sedentary agriculturist. This established complementary use of resources over space and time. These complementary and supplementary relationships helped build up an ecological setting conducive for successful

institutional building and communities were enabled to adapt to the uncertainties of the Punjab environment in early nineteenth century.

A confirmation of this pattern is discernible from the study of the Swat region of North Pakistan made by Fredrik Barth, which shows that the "environment of any one ethnic group is not only defined by natural conditions, but also by the presence of the other ethnic groups on which it depends. Each group exploits only a section of the total environment, and leaves large parts of it open for other groups to exploit" (Barth, 1981: 3).

Barth uses some of the concepts of animal ecology, particularly the concept of a niche -- the place of a group in the total environment, its relations to resources and competitors, to explain the co-existence of three major groups in the Swat state in which one group carried on in the main sedentary agriculture, while the second combined sedentary agriculture with transhumant herding along with groups who were nomadics.

The self-organising capacity of the rural Punjab groups was tested by the given low demographic pressure in the early nineteenth century. Both the demand for land and the supply of labour force could sustain techniques of land-use characterised by a system of adjustable lengths of fallows in land. This system of fallowing was additionally required by both inadequate and uncertain level of precipitation and equally unpredictable irrigation from flood water and wells. Hence, the pattern of land-use was based on extensive use of fallows.

The extensive use of fallows had to be supported by a pattern of property rights which would induce the different groups to submit to a specific rhythm of crops and fallows both within the settlement and outside in the long range "wastelands." Since the two main land-using occupations -- the arable and the pastoral -- required different scales of operation, self-organising cultivators and herders arranged a combination of scattered fragmented pieces for crops with compact holdings for grazing. Scattered fields were privately held when there were standing crops on them and became

"primunal" (Dahlman, 1980) or collective when open to common of shack. Grazing commons were compact.

Ownership of both the scattered and the commons was expressed in shares. Hence, this combination of ownership rights locked individuals within the group so that withdrawal from the collectivity involved externalities. This was an additional pressure on the community to build up institutions which could handle the given uncertainties in sustaining a level of production. A certain level of production had to be maintained because a *surplus* generation over and above self-subsistence was critical to support the high and sometimes unpredictable "revenue" (taxation) demands of predatory rulers on the one hand and the necessity to sustain the complementary services required in a non-market economy. Both "revenue" and service obligations were made in grain.

"Surplus" generation in an uncertain environment required groups to build up stamina through group action. Communities had to provide a set of incentives by which individuals saw the rationale behind joint action. For example, a member of the "proprietary body" unable to pay his share of the joint land revenue (land tax) was bailed out by the community in return for which the individual agreed to abide by the conditions laid down by the community for the land in question.[8]

The institution of common property resources served as the sheet anchor of the "joint-land-lord communities" in the Punjab where inter-dependance within the group was extended and deepened by communal ownership of some resources. Group action which protected an individual's life and property thus became a convincing reason for an individual to submit to collective decisions and rule-making which could preclude free-riding.

The historical situation in colonial Punjab can delineate the above observations. We would also want to explain the institution of the Punjab rural communities from the vantage point of disciplines which have been concerned with institutions.

Perception and the World of Concept

At the conceptual level, there are new insights: anthropologists for example maintain that a community is one which sustains a particular way of life. This has influenced statements like: "A way of life is a viable combination of social relations and cultural bias," (Thompson, Ellis, and Wildavsky, 1990: 5). The authors say the relationship is not necessarily causal but a way of life could be sustained if it inculcates in its constituent individuals the cultural bias that justifies it. It is however debated, time and again among social scientists, as to whether "institutional structures cause culture (defined as values and beliefs, i.e. mental products) or culture causes structure" (Thompson, Ellis, and Wildavsky, 1990: 5). According to this view, values and social institutions are interdependent and mutually reinforcing: "Institutions generate distinctive sets of preferences, and adherence to certain values legitimizes corresponding institutional arrangements." This way of argumentation goes beyond the difference between methodological individualism and methodological collectivism. They believe that institutions do constrain the individual's action but also that it is the individual which maintains, and sustains or changes institutions. Individuals do find themselves in settings not of their making as Marx says, but it is the individuals who create, sustain and transform their settings.

Another approach to institutions is that of the ecologists who have discovered that different eco-systems like forests, fisheries and grassland were managed by institutions which varied widely even when facing similar situations. Ecologists would explain these differences by the response of institutions to different "myths of nature -- Nature Benign, Nature Ephemeral, Nature Perverse/Tolerant, Nature Capricious and Nature Resilient" and they suggest that it is institutions which "supply us with myths, directing attention towards some and away from the others" (Thompson, Ellis, and Wildavsky, 1990: 28).

However, intellectual conception can alter over time. For example, in 1926, Herskovits studying the African pastoralist did identify communities by their shared cultural traits related to occupation. Hence, it would have seemed that the "cattle complex" "was an expression of dominant cultural values rather than ecological adaptations" (Netting, 1986: 42). However, a series of studies in Africa later led to the conclusion that "the social attitude toward cattle are related to and may have arisen from subsistence or survival imperatives" (Deshler, 1965; Schneider, 1979: 10).

Economic theory can explain the outcome of decisions taken in the market given a set of factors of production, a set of preferences and a given level of technology, but assumes institutions as implicit. This lacuna becomes glaring, for "Institutional arrangements inform decision makers about their standing and about the consequences of their behavior. It is institutions that assign authority in relation to the endowments of land, labor, and capital. Institutions matter" (V. Ostrom, Feeny, and Picht, 1988: 159).

Again criticism has been levelled at economics for assuming preferences as given and exogenous to a system. Wildavsky, for example, argues that if "preferences are formed through the organisation of social relations, however these preferences must come from inside, not from outside, our ways of life -- from institutional arrangements" (Wildavsky, 1987: 5). Further, critics argue that the theory of choice rests on differences of taste without a theory of preference to explain the formation of tastes.

The "new institutionalist" approach (as Elinor Ostrom calls it) has been to stress the importance of empirical evidence in drawing up a conceptual framework. Thus, Ostrom selects "small-scale CPR situations to study because the processes of self-organisation are easier to observe in this type of situation." The central question she addresses is how principals in a situation of interdependence "organise and govern themselves to obtain continuing joint benefits when all feel temptations to free-ride, shirk or otherwise act opportunistically" (E. Ostrom, 1990: 29).

* * * * *

Our understanding of joint action by communal groups is that it represents, on the one hand the internalisation of pro-social instincts of individuals to seek protection of life and property and on the other, a wish to "reap a surplus that is otherwise unavailable, by engaging in co-operative activity" (Hechter, 1991: 1). Therefore humans, like social insects do succeed in organising in large groups, but, unlike insects, individuals are not hard-wired to work towards the welfare of the collectivity. Hence, individuals within a collectivity can shirk, cheat and free-ride; unless prevented from doing so by self-organised institutions of rule ordering, monitoring and sanctioning -- i.e., self-governance.

Perception and the Real World

At the level of activity, a window to human perception, collective action and the creation of an ecological setting is provided by the empirical framework drawn from the imperial records of colonial revenue and judicial administration of the Punjab. These were observations of British officials in the districts at several points of time. The district officer's conception was in part the product of received theories which underlay imperial policy decisions and part the result of his field observations. These, therefore, varied over time (Wade, 1988: 1). We have conceptualised the ground pattern by bringing together the observations recorded from different locales and times. In any case, if the views presented here are wrong, there can be little harm done as they can be struck down if proved otherwise "and when this is done, one path toward error is closed and the road to truth" is still open (Charles Darwin, The Descent of Man, 1871: II, 385).

The Punjab was a complex eco-system which could be divided into three broad geographical zones. One, the montane and sub-montane parts which were bounded by the sharp Siwalik ranges in the east and the Himalayan ranges from the North West to the North East. In this region there was rain-fed agriculture supported by wells in the sub-montane; there was the pastoral in

the upper regions and the lower hills interacting with the agricultural regions. Two, the fluvial areas which lay between the rivers Indus and the Jumna, intersected by several rivers and the Western Jumna Canal dating from the Mughal times. The rainfall varied from east to west, and accordingly there was rain-fed agriculture supported by wells in the khadir (lowlands), and by inundation canals. Three, the dry south and south-west tracts with the Thar desert as the southern limit. Here, too, there was rain-fed agriculture, but with long fallows and shifting cultivation.

This entire region was marked by two different agricultural systems. In the first there were settled villages, with a long and continuous history of sedentary agriculture. In the second, nomadic pastoralists carried on a combination of long fallow or shifting agriculture, with pastoral herds always on the move. In the first regime, the villages had rough boundaries within which the village community distributed the arable in scattered strips and held grazing land or the waste in common. In the second, there were no fixed settlements, and therefore no customary and clear division between the arable and the pastoral lands. These two extreme situations: (a) of settled villages with common lands and (b) of neither settled villages nor common lands, existed in all the districts of the region; but the second situation was more prominent in the pastoral areas of the dry tract and the montane tract.

In the entire region, all villages, whether settled or temporary, used the immediate surroundings for pastoral purposes, that is, the short fallow stubbles of cultivated fields, supplemented with grass fallows *in* the village if there were common lands as in the Delhi region.[10] In the two zones of the region which were mainly pastoral, grazing was not limited to any particular demarcated place and the cattle owners gave the charge of their cattle to graziers who moved with the cattle in gols or large herds, across grass, riverain and forest fallows over both long and short distances.

There was an element of the pastoral in all the agricultural divisions. Movements of the pastoralists were essentially of two kinds: (1) regular

seasonal movements during the monsoons, after the kharif (autumn crop) in winter and after the rabi (spring crop) harvest in summer; and (2) occasional movements during droughts, scarcities and famines.

The location of long fallows for grazing determined seasonal movements. These fallows supplemented the grazing resources of village cattle holders, whether there were village common lands for grazing or not. Thus, the riverine lands and the chhambs (swamps) provided the winter grazing tracts for cattle for all the three divisions. When the spring or rabi crop was cut, the stubbles and grass was left in the waste and on the ridges of the cultivated fields and waterways and the cattle would move back to their original locations. In the summer, cattle would move to the hills and the valleys. The monsoons would drive the cattle back from the hills and riverain to their original habitat.

This interdependence was based on reciprocity. When the agricultural activities required the cattle to be kept away from the fields for example, in Karnal district, "the Jats occupying the south of the Kaithal Bangar often find (found) it necessary when the kharif ploughings are (were) completed to drive their cattle into the villages of their Rajput neighbours for a month or two paying so much per head. The cattle return (ed) when the time for the rabi ploughing has arrived. The Rajputs in their turn in spring often drive their cattle into the villages of their caste brothers in the canal irrigated part of Panipat, and they sometimes even take them into the Muzaffarnagar District."[11] This pattern was observable in the other areas of the Punjab.

This interdependence increased during unseasonal weather cycles and drought. Famines were a real testing time for such interregional use of fallows. The natural immunity of the hills from famine made them the surest refuge for graziers from the plains. The famines of 1860-61 saw not only the movement of cattle to the hills but a reverse movement of grain from the hills of Kangra to the plains of Delhi.

For settled tribes, in times of political trouble, cattle provided the easiest form of wealth to carry, but when trouble died down, the cattle became

subsidiary to cultivation. Similarly, in times of extreme variations in climate, cattle were the only transportable wealth and hence areas of severe climates were prone to pastoral activity. Village communities developed only and when a tribe could settle down in an area. This is what happened in the Delhi region.

Thus, the two major groups of land-users were the pastoralists and the cultivators. One set of users with a strong "cattle complex" (this has been observed in East Africa as well) (Netting, 1986: 42) lived with low and uncertain rainfall by variation in their location, i.e, by "seasonal mobility to deal with periodic scarcities" (Moran, 1979: 321). Transhumance was also an adaptive life-style in the extreme cold seasons of Himalayan and sub-Himalayan regions. The other set adapted to uncertainties of precipitation and river action by a pattern of land fallows which enabled "localised diversification approaching self-sufficiency," as seen to happen elsewhere in the dry regions of the world (ibid.). Thus, the pattern of demand by the two groups was complementary both over time and space. The resources could be supplemented by reciprocal arrangements among themselves, specially in times of stress like famines and political turmoil. Thus, the vast inter-fluvial areas as well as the mountain ranges were linked together by complementary arrangements and could therefore be likened to one vast *commons*[12] which were used and "managed" by intricate "exchange networks that facilitated access to a wider resource base than could be practically controlled" (Moran, 1979: 321) by any one group.

The sharing of the "regional commons" can be inferred from the pattern of grazing in the early nineteenth century described in reports (Fortescue, 1815; Fenton, 1822; Thomason, 1845; Barnes, 1849) about the vast areas of what they called the "primeval waste." The village common land held by sedentary cultivators appeared to be "that part of the village domain which is temporarily uncultivated, but which will some time or the other be cultivated and merged with the arable mark" (Maine, 1881: 120). This village common land was supplemented by the:

(i) stubbles of the harvested fields which were then fallows after either a one-crop season or in irrigated tracts after each of the multi-cropped or double-cropped harvest;

(ii) intermediate waste lying between one settlement (deh) and another;

(iii) riverain banks kept fallow due to uncertain inundation;

(iv) forest-grazing in the hills and valleys where cultivation was intermittent or absent;

(iv) high range meadows in the Himalayas.

These grazing resources were shared by the cattle holders whether they were cultivators or pastoralists in the main. And so long as the population pressure in relation to the aggregate resources remained low, informal division of the "regional *commons" (open access resource)* among the users could be sustained with minimal friction. Further, so long as the external uncertainties remained, a pattern of complementary dependency between the cultivators and the pastoralists induced collective action.

We owe this insight into the causal relationship between demographic pressure and the pattern of land-use from the analysis by Ester Boserup. According to her,[13] "apparently unused forest and bush lands served as fallow for the native population" (Boserup, 1965: 15-16). Further, as population increased, under-developed countries have moved from the extensive form of cultivation to the intensive form. This they have done, Boserup says, with or without irrigation.

The Village Commons or the shamilat-deh, was thus the long fallow or banjar kadim, that was available as grazing land which included scrub and forest within the village, but this will not obscure the importance of the other activities to which the shamilat was harnessed. There were areas used for residential purposes -- the ABADI; areas which provided protection -- like johads, or ponds for catchment of rain water: JOHADS; areas for production -- fields growing grass like mooni for rope making, barilla for soda-carbonate, saiji for soap manufacture, etc.: DHAKA DARAKHTAN; areas serving as shelter belts -- like dams, field channels, etc.: DHANA; areas of storage -- like the place for manures, for bones of dead animals, cattle pens: GORAH DEH; areas of commercial production like the indigo vats, sugar presses, sheds for looms

etc; and areas of social communications like roads, pathways, platforms and community halls: SHARE AM, SADAK KHAM, CHAUBATRA, CHAUPAL, respectively.

The shamilat-deh, or the village common, was exclusive to the malikan-deh or the proprietary body of the village in which they were located. However, the ownership of some of the categories of shamilat mentioned above could be split and kept in common among different groups. Thus, a village could have specially the partible categories of common lands in the following manner: (i) The common grazing could be sub-divided amongst the major families and then the shamilat of each family would be SHAMILAT TARAF; (ii) within each taraf, the shamilat could be further broken up amongst the families comprising the taraf, that is among the pattis and the common land would then be SHAMILAT PATTI; (iii) the families within each patti could sub-divide the common land of the patti and this would mean that each group within a patti would have land common to the group and this would then be SHAMILAT THOK OR THOLLA.

SHAMILAT-DEH

The partible	The impartible
Shamilat grazing in Taraf	The Abadi
Shamilat Patti	The Johad
	The field channels
	The pathways, etc.

The malikan deh would thus be the group which paid the revenue liability to the government collectively. Each malik paid a share which also indicated the share in the joint profits from the commons if any and in the shamilat when it was partitioned. The user rights were given to the other residents of the village -- cultivators, service groups and to outsiders if any.

THE MALIKAN DEH AND THE SHAMILAT DEH

Common Land Category	Ownership Right	Management Right	User Right
Shamilat Deh " "	Malikan Deh	Malikan Deh	Malikan Deh Cultivators Service groups
Shamilat Pana " "	Pana Dars	Pana Dars	Pana Dars Pana cultivators Pana service groups
Shamilat Tholla " "	Tholla Dars	Tholla Dars	Tholla Dars Tholla cultivators Tholla service gr.

Source: Compiled from the Jamabandi Records of Mauza Kanjhawla from the Settlement Records of the village in 1880.

We hypothesise that communal control over common property resources slackened in the nineteenth century because the ecology of the Punjab was modified by circumstances both within the collectivities and large-scale external factors to which they had to adapt. The processes of change affected the incentive structure and altered the response of those who perceived them.

The incentive structure shifted as risk and uncertainty to a way of life changed. Instability in the eco-system was reduced by the colonial rule and a movement in the same direction took place as a result of (a) increasing population and supply of labour together with growing cattle numbers in the second half of the nineteenth century; and (b) because of uni-lateral impact of an external agent/agencies like the Government and the market.

The demographic growth was both a response to and a cause of reduced uncertainty to life and property in the second half of the nineteenth century. Growth in numbers created a pressure on natural resources both within the settlements and outside them -- in the eco-system as a whole; this raised the value of land as a property resource; and so finally provided incentive to free-ride on the commons which were more valuable and at the same time to make privatisation of the commons more attractive.[14]

In the same time period the environment of the Punjab was being modified by the institutions of a colonial government which appropriated land for plantations, colonisation, railways and canals, by restricting the use of these to native users. "This kind of land policy ignored the fact that large parts of the territories from which the natives were thus excluded served as fallow in long fallow rotations" (Boserup, 1965: 18). It is true that early colonial classification of land saw "one productive use for land, namely cultivation" (Gorrie, 1941: 23). However, in the Punjab it was not lack of official perception *alone* which underlay colonial land policy; but, it was rather the case of a modern western imperial power being caught between comprehension of a diverse indigenous system and the constraints of colonial realities which it was ill-equipped to deal with. Consequently, it imposed a uniform set of revenue codes and a judicial establishment which ironed out the diversities of institutional arrangements to regulate property rights. In the process, collectivities lost their autonomy to self-organise and govern themselves.

Joint control over *common property resources* were thus influenced by the perceptual reaction to ecological change of those within the collectivities which controlled them and of those outside them.

These processes were interrelated because institutions of communal action were rule-ordered human relationships within a particular ecological system and artificed with the perception and conception of those involved. Perceptions were galvanised by two sets of conditions -- one, how the communities perceived themselves, their shared preferences and their cultural bias towards their ways of life; and the other, how they perceived others with whom they shared the eco-system in patterns of complementary and supplementary relations. As the physical world was shrinking and uncertainties reduced, each community was looking inwards and adopting more exclusionary strategies to become independent of others. Individuals within the collectivities also did the same as against other members. A movement away from the collective choice to an individual one occurred.

This process was aided by the growth of market relations which was the result of monetisation, railways and communications. Impersonal market relations replaced the customary network of dependency both within collectivities and between them. Maine called this a movement from status to contract. Such arrangements altered ways in which the collectivities perceived themselves, their way of life, their hierarchical and rule-ordered relationships and the customary rules of sanctioning and monitoring that regulated common property resources. The most critical change that surfaced was the perception of the collectivities to the ecological system in which they had been accommodated. Collectivities became insular and exclusive. Attitudes of co-operation and joint action with others were replaced by those of free-riding and shirking. *A disregard for externalities occurred.*

There was another dimension to institutions of joint action and the ecology of the Punjab -- that is the existence of self-governance within the collectivities. Customary usages of common property resources both within the collectivities and outside them were upheld by institutions of monitoring and sanctioning (a system of governance). This area of control was overlaid with an imperial system of "governance," by a bureaucracy, law and modern law courts. *Communal authority was eroded.*

The results are what we see today. Rights in common property resources were no longer based on unwritten understandings and customary usages but rather on recorded rules without the accompanying system of governance in the indigenous context. Hence, conflict resolution went to a modern court instead of indigenous institutions. These aspects of communal governance and Customary Law will not be dealt here, but, it is noteworthy that judicial institutions in the Punjab did make attempts to reinstate customary law and the authority of the indigenous institutions. If however in spite of this, the authority of these institutions declined it was because of the larger genre of change in the general institutional environment created by a modern bureaucracy and judiciary.

In conclusion: we believe that institutions of common property and collective action have evolved as characteristic features of the "Village Community," and the concept of the "little republics" described by Charles Metcalfe (1830) continues to be popular among historians even today.[15] (Bayly, 1985: 74; Wade, 1988). The British "discovery" and claim that these institutions of social order in the countryside could be traced back to antiquity lent them an aura of stability and permanence. Besides, the group solidarity of the rural property owners provided the imperial government "a most important collective good: *social order*" (Hechter and Kanazawa, 1991: 2). In effect, the state free-rode on the social control activities of primary groups, and in the process it gained economies of fiscal collection. This was important for an imperial power foreign to the cultural scene of a colonial economy, particularly in the second half of the nineteenth century when the social upheaval caused by the sepoy mutiny in 1857 was fresh in the minds of district officers of the Raj.

However, these group formations have been explained here in the context of a diverse and unstable environment. An uncertain eco-system caused multiple impact on human decisions about systems behaviour. "Human populations have sought to overcome potential system instability" (Moran, 1979:321) by adopting strategies that are complementary. The feasibility of such strategies controlled by a given population were dependent on the pressure of demand for natural resources in the system on the one hand and the characteristic relationship of the different operational elements in that system. Different groups sharing the system had to adapt to requirements of others and at the same time adopt different strategies to share the burden of uncertainty and to avert risk. Several social and cultural practices were adopted to support these basic strategies. This was apparent from the life-styles and property arrangements of the two major groups in early nineteenth century Punjab -- the pastoralists and the arable sedentary cultivators."

Collective action was evident (a) in the pastoralist's-nomadic life-style of seasonal and rhythmic movement with cattle to overcome seasonal failure of precipitation, flood waters and variations in natural vegetation which caused scarcity of water, food and fodder; (b) in the pastoralist spreading the risks of investment in terms of time, labour and seed by adopting a technique of cultivation which used fallows extensively over long distances and by growing "inferior crops" which economised on labour- and capital-consuming techniques of cultivation (Netting, 1986: 45). But this was not as simple as it sounds. Seasonal mobility may have solved periodic and locational scarcities for one group but, in a situation where there were diverse pastoral groups all competing with each other, and all attempting to do the same, it was obvious that a pattern of arrangements had to be made among the competing groups. An informal mode of rights had to be ascertained and agreed upon, observed, monitored and sanctioned for infringements.Rule-ordering of this magnitude was impossible without collective action and perhaps some amount of frictional maladjustment.

The social organisation of such societies tended to be acephalous and with more egalitarian attitudes, than that obtaining in a comparable arable society. The harsh environment in which these groups adjusted tended to encourage flexible groupings and re-groupings not always necessarily based on patrilineal linkages. Studies in pastoral East Africa (Spooner, 1973, in Netting, 1986: 58) and the Nuer (Evans-Pritchard, 1940) indicate how groups tend to collect on the basis of shared interests in common locale of water, [illegible] and subsistence agriculture than on pure lineal linkages (Moran, 1979: 321). Such societies tend to fuse lineages into genealogical relationships "to suit the realities of current co-operation" (Netting, 1977: 58). Such may very well have been the case of the pastoral groups in early nineteenth century Punjab.

Collectivities of cultivators on the contrary met the situation of uncertainty with "localised diversification approaching self-sufficiency" (Moran, 1979: 321), or by developing complex network of reciprocity and

exchange over a wider area than can be controlled by any particular group. Such groups tend to be rule ordered. Order is rooted in the authority exercised by the hierarchical relationships within these associations of people with a supposedly common perception of preferences and shared values. Genealogical linkages were stronger as the information net-work was based on settled land-ownership and patterns of assembly, deliberating, consulting, engaging in intelligible communications in efforts to solve problems. The functioning of such a society required inculcating a common cultural bias. Such a shared framework could be attained by a degree of control exercised by collective sanctioning and monitoring to preclude free-riding.

Here is the first major divergence in the perception of a historical category referred to as the" Village Community." Both officially and in academic circles the term has not very specifically indicated the epicentre of that collective organisation which set up, adapted and controlled common pool resources. More important, rule configurations and rule monitoring and enforcement has not been seen as visible features of self-governance in these groups. Collectivities were much more implicitly inclusive and much less explicitly exclusive than they appear to be when identified with communities located at a specific village. To begin with, groups were inclusive horizontally over space and vertically over time. Within each specific location, groups of land-owners and cattle owners were inter-locked by the rhythm of fallows and cultivation.

Hence, adaptation to an uncertain environment and to complementary occupational requirements was the underpinning of collective action which had to use information network to devise an ecologically adaptive system to undertake patterns of transaction compatible with setting of the Punjab ecology. Communities had to build up institutions to maintain a social order and an economic order.

While social order could be maintained by rules which upheld a hierarchical system of relationships within and one of reciprocity with other groups; economic order could be maintained by optimising the use of a diverse

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environment (a) through a pattern of land-use which adjusted to the different scales of production in the arable and the pastoral occupations and (b) by devising a system of property rights which gave incentive to combine both individual property and common property in the conduct of individual citizenship and community endeavours.

Such programming could be done with a great amount of institution building which was not costless. The transaction costs would have been very high if every individual were to participate in such decision making. Hence, delegated authority to decide was a device which only a collective body could undertake.

If the environment was diverse so must institutions be diverse. Unanimity within collectivities can co-exist with diversity. Unanimity was not necessarily synonymous with uniformity.

Further, we hypothesise that the colonial rulers brought in a new genre of rule which functioned on the basis of formal record-keeping that is, the written word. Whereas the indigenous system had been tuned more to the unwritten word recalled from memory or what was known as smriti. There was thus a transition from the sphere of secular usages which was the root of customary law to that of a world of modern jurisprudence sanctified by the will of a sovereign or what may be called statutory law.

There was a shift in the basic epistemic order in the relationship between the Ruler and the Ruled. The community was no longer subject directly to their own usages alone but also to those rules sanctified by the Ruler. It was also a shift from direct ordering within to that imposed from the outside. The hierarchical relationship within the community was overlaid by another strata of hierarchy -- that imposed by the imperial bureaucracy. In the process there was attenuation of the authority by which the community had kept order within the group.

This poses the issue of *sovereignty*. In the context of Punjab, the identification of *the community* was as baffling as it was important. The colonial revenue administration resolved this issue by recognising a distinct

community of land owners as the proprietary body or *the* maliks of the boundaried village or deh. But at the same time the administration could not ignore the main body of cultivators who had been brought in by the maliks to supplement the labour required for cultivation. These people may or may not have belonged to the ethnic groups of the land-owning body or the malikan-deh, but legislation like the Punjab Tenancy Act of 1867 gave them official recognition.

This meant that tenants acquired a status by which their claim to occupy common lands became cognisable by a modern court of law. It was a double threat to the authority of the proprietary body as their ownership and decision making rights were challenged. They retaliated by *partitioning* the commons. This was the beginning of the end.

Ecology and Evolution of Institutions

We are using the word ecology in the same sense as the Greek derivative from the term oikos, meaning habitation (Netting, 1986: 1). Man is a social animal therefore he operates at multiple levels to create a way of life or habitat. At one level he is "operating in nature" or what Marx would say "naturwuechsig" (Hobsbawm, 1964: 13). At another, he functions with others of his own kind. This relationship is nested, and therefore open to institutional structuring.

Though there may be widespread agreement that "ecology deals with organisms in an environment and with processes that link organism and place" (Shepard and McKinley, 1969: 1-10) it is clear that "there is no body of thought and technique which frames an ecology of man" (ibid.). Netting reiterates that ecological studies sometimes overlook the fact that the relationship of organisms to their environment also includes the relationships of individuals of the same species to one another (Netting, 1986).

This relationship can cause friction when one man's action to appropriate from nature impinges on another doing the same. Particularly so because the environment is a common pool resource possessing no doubt "original and indestructible powers" (Ricardo) but regeneration is not

infinite and it is certainly open to alternative uses. Even at the risk of stressing a neoclassical economic tenet we cannot get away from the fact that relationships of both humans and animals with the organic and the inorganic environment can be both beneficial and detrimental. Darwin referred to this as the conditions of the struggle for existence. Biologists with a neo-Malthusian bent of mind will label it a "tragedy" (Hardin, 1968: 1243).

A new insight into human behaviour is attempted by the "dual inheritance theory"[17] in terms of "synchronic (ecological) and diachronic (historical) processes (Boyd and Richerson, 1985: 290). According to this theory, contemporary human behaviour can be explained by cultural evolution by a similar causal relationship that exists between ecological and evolutionary processes. Their conclusion is that "Evolutionary forces imposed by the environment will be strong for some behaviours, such as subsistence techniques, weaker for others" (ibid.: 291). This is of particular relevance when we consider the relationship between human behaviour in a particular ecology and the evolution of institutions devised by human artisanship over time. *We need to consider institutions in a cultural matrix.*

These are taken into account by "institutional analysts" who take the process of evolution further. It is suggested that human artisanship reflects economic, political, and epistemic contingencies. In other words "artisanship is evolutionary, working in co-evolutionary processes (Radnitsky and Bartley, 1987) that can be potentially identifiable with reference to economic, political and epistemic ordering. Potentials for artisanship vary in an evolutionary way that is variable with the growth of knowledge, productive potentials in an economy, and complexities in rule-ordered systems of governance" (V. Ostrom, 1991). In short, as human relationships evolve and co-author change in the environment, human perceptions sharpen. A multiplier is activated -- both in the world of activity and in that of ideas.

This brings us back to the question of the common lands persisting in the middle of the twentieth century, in villages like the cluster of twenty with which this paper began. It is significant that only one village of the

twenty -- Rani Khera -- partitioned common lands before independence, and that too as a result of the joint decision of the entire cluster. The answer lies in the strength of shared values of the clan groups which held together. The post-independence story of the cluster brings to the fore the whole issue of common lands. The Kanjhawla agitation of 1977-78 stands testimony to collective action. It serve to highlight not only the issues of common property resources but far more important ones of *sovereignty; self-organisation and human ecology*.

Notes

1. Henry Sumner Maine (1881:120) talks of the Enclosure Movement. Maine was influential in policy decisons of the Government of India because he was legal adviser to John Lawrence, who had been the first Lt. Governor of the Punjab.

2. Shamilat-deh, were the common lands of the village which consisted of the residential area, the ponds, grazing and wood lots, field channels, cattle pens etc.

3. Henry Sumner Maine (1881: 101) compared the Indian Village Community to the "organised, self-acting group of Teutonic families, exercising a common proprietorship over a definite tract of land, its Mark, cultivating its domain on a common system, and sustaining itself by the produce."

4. Tom G. Kessinger (1974: 19, 26) raises the question about the village community "Is it a village as designated in the revenue records (mauza), a populated place (abadi), a discrete settlement (pinda), or a group of settlements bound together by ties of caste and friendship (ilaqa, thapa)? To what extent does the model of semi-autonomous groups within the state coincide with the familiar picture of the Indian "village republics"?" Again he writes "We will see that if economic self-sufficiency ever existed in rural Punjab, it involved clusters of villages around a qasbah (a larger village with a permanent bazaar) an area considerably larger tha a single settlement".

5. O.H.K. Spate (1953: 462). The Punjab region has been described as "a great mass of alluvium brought down by the Indus and the five Rivers -- from W to E Jhelum, Chenab, Ravi, Beas and the Sutlej -- which give the province its name and unite in the SW to form the Panjnad or Five Streams" (ibid.: 461). In addition to this British Punjab consisted of the "debatable marchland of Sirhind -- the 'Delhi doab' or the Indo-Gangetic divide" which was essentially the land lying between the Sutlej and the Jumna.

6. Delhi was annexed in 1803 and the Punjab after the Sikh wars in 1849; Punjab was inclusive of Delhi after the First War of Independence in 1857 and Greater Punjab was in its most extended form till 1901 when the NWFP was separated. In 1912, Delhi became the capital city of Imperial India.

7. J.L. M. Lawrence, in his settlement report of Delhi in 1834: "The biswadars, from their numbers and clannish feelings, from the common interest that the whole body possess in the soil, are induced to combine and prevent the alienation of their lands in cases of arrears of Revenue." B. H. Baden-Powell (1892: 109-111) attributes collective control in village communities to "strong tribal feeling." Kessinger (1974: 70-71) says "The proprietary body's control of Vilayatpur was based on its clearing of the land and settlement of the village, and the power to sustain it s dominance. . . . meeting any threat to its position by groups like the Rjoput zamindars, the different [illegible], and perhaps even from the state."

8. T. Fortescue (28/4/1820) described the way in which a distressed family was looked after by the brotherhood in return the family complied with the communal prescriptions.

9. Michael Thompson, Richard Ellis and Aaron Wildavsky (1990:3) "There are five ways of life which are viable --hierarchy, egalitarianism, fatalism, individualism and autonomy," they call it their impossibility theorem.

10. T. Fortescue (1820:79) noted in the Delhi villages that there were "waste and common lands attached to the village as jungle and pasturage."

11. J. M. Douie, D.C. Karnal to Commissioner and Superintendent, Delhi Division 8/8/1884, para 7, Land Revenue and Agriculture (Famine) Proceedings 3-4 A, Sept. 1885.

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12. Sirsa Settlement Report, 1874-83, pp379-383; also Revenue and Agricultural Proceedings 23A, 1895-1901, para 17.

13. Ester Boserup (1965:15-16) has classified land on the basis of intensity of land-use: she has made five categories -- (i) forest-fallow cultivation; (ii) bush-fallow cultivation which some authors combine as long fallow or shifting cultivation; (iii) short fallow cultivation; (iv) annual fallow cultivation; (v) multi-crop cultivation.

14. The malikan-deh or the proprietary body paid revenue according to their biswadari rights or share of the total revenue and therefore held a share in the same proportion of the common lands. Any biswadar or shareholder could ask for a share in the commons to be partitioned. This phenomenon surfaced as a result of the development of a market for land in the second half of the nineteenth century.

15. C.A. Bayly (1983) "In one of the most famous passages of Indian historical writing, Sir Charles Metcalfe described village communities as 'little republics' unaltered by the clash and fall of dynasties above them: 'Hindoo, Patan, Moghul, Mahratta, Sik, English, all are masters in turn; but the village communities remain the same'." Robert Wade (1988: 1) maintains that "The obvious truth is that villages vary, some being more like Maine's communitarian ideal than others."

16. J.M. Douie, D.C. Karnal, to Commissioner and Superintendent, Delhi Division, 8/8/84, para 7, Land Revenue and Agriculture (Famine) Proceedings 3-4 A, Sept. 1885: The Jats made marriage alliance with the naili village girls in order to obtain grazing free of charge in the naili village. In return the naili cattle which had to be driven away during the floods sought refuge in the upland village.

17. Robert Boyd and Peter J. Richerson's (1985: 290-291) dual inheritance theory tries to establish a link between ecological and historical processes on the one hand and the experience of individuals with those of large scale patterns of human relationships on the other. A parallel is sought with biology where Darwinian Theory unifies the theory of ecology and evolution. Thus the theory holds "cultural traditions leads to persistence of behavioral traits through time, but generation by generation, even day by day if our measurements were fine enough to detect it, traditions are modified by accident, individual choices, and natural selection."

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GUHLS -- A TRADITIONAL IRRIGATION SYSTEM IN GARHWAL: A Preliminary Investigation

Rajesh Kumar, Debashish Sen, Ravi Chopra*

I. INTRODUCTION

A guhl[1] is a diversion channel formed by blocking the flow of a small hill stream and traversing the contours of the hill (see Appendix). Guhls are a traditional form of irrigation in the hilly regions of northwestern India (Sengupta, 1987). The construction, operation and maintenance of guhls has been traditionally organized on a community basis. Hence they form an important part of the common property resources (CPRs) in these hill regions.

The present paper is based on a preliminary investigation to examine the current state and functioning of guhls in the Garhwal hills. Two regions were selected for the study: (1) the Chandra-baghaga watershed in Tehri-Garhwal district and (2) the Shorgad watershed in Chamoli. The Chandrabhaga watershed is close to urban centres and markets, while the Shorgad watershed is quite isolated (see Figure 1).

The paper highlights (1) the strong element of community participation and management of the traditional guhls and (2)

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1 In some regions, e.g., Himachal Pradesh, the diversion channels are called kuhls.

the nature of state intervention in the operation and maintenance of the guhls, its causes and implications.

II. THE VILLAGES

In the Garhwal hills, the area under irrigation is quite limited. The two most irrigated villages in each watershed were selected for study. These were:

Chandrabhaga: Daunra Mai Kanda and Talaai
Shorgad: Bhatwari and Bachhni.

Their basic statistics are given in Table 1.

Chandrabhaga Watershed: Daunra Mai Kanda and Talaai are adjacent villages, in Daunra gramsabha. Daunra Mai Kanda the larger village, has two sections, Daunra and Kanda. The area is dominated by Thakurs (see Table 1). In both villages, all the families own land and have access to the common water sources. There is a good degree of community spirit. Families participate in social rituals irrespective of caste. Agricultural operations have traditionally been done on a collective basis.

The people of Daunra Mai Kanda have lands in both sections -- Daunra and Kanda. Kanda is at a higher altitude. Irrigated farming is practised only in Daunra, with the help of guhls. Talaai does not have any perennial source of water. Irrigation water is available only through one guhl from Daunra.

The people have small landholdings; the average being 0.4 ha (20 nalis).[2] Since part of the land is kept fallow for firewood

[2] In the hills it is difficult to find large tracts of flat land for cultivation. Agriculture is practiced mainly on terraced fields whose size is measured in nalis (1 nali = 0.02ha)

and fodder collection, on an average a family has only 0.32ha of cultivated land. Irrigation in the area is associated with the use of farmyard manure (FYM) and inorganic fertilizers. The average application rate for FYM is 8-10 T/ha and 75 kg/ha for inorganic fertilizers.

Most of the field operations are done by women, but ploughing is done by men. Traditionally, all the operations like ploughing, transplanting, weeding, harvesting and threshing are done by common efforts, in each others fields. But now this practice is on the wane.

Daunra Mai Kanda has 13 guhls, while Talaai has only one, originating in Daunra. These guhls have been constructed during the last hundred years. They were made by the combined efforts of the villagers, especially those benefitting from them. All the guhls, except one, are unlined. Since each familiy in Daunra has plots of land in different locations, it draws water from different guhls.

The oldest guhl in Daunra is over 100 years and brings water to Talaai also. The guhl is about 3 km long and irrigates about 9.5 ha of land (4.9 ha in Talaai and 4.6 ha in Daunra). Seventy-one families benefit from it -- 38 in Daunra and 33 in Talaai. This guhl was taken over by the State Irrigation Department in 1987 and lined with cement and concrete (see later discussion).

Shorgad Watershed: Bhatwari and Bachhni are located at higher altitudes than Daunra Mai Kanda and Talaai. Bhatwari was settled only in the early 1950s. All its 14 families are Thakurs. Bachhni

has five Harijan families and the remaining 17 are Thakurs. The social division is sharp. But where Thakurs and Harijans share a guhl, its maintenance is a common effort.

Bhatwari has two perennial streams, whereas Bachhni has none. The farmers in Bachhni draw water through guhls from the Shorgad stream. Thus, almost 80 per cent of Bhatwari's cultivated land area (about 6 ha) is irrigated. In contrast, the irrigated area (2 ha) is only 20 per cent of Bachhni's cultivated area.

All the families in the two villages own land and are able to irrigate a portion of their land. They own land in neighbouring villages also. Because of the good irrigation facilities in Bhatwari, people from surrounding villages also own small plots of land there. On an average, most people own about 20 to 25 nalis (0.4-0.5 ha) of which 10-12 nalis are cultivated in their own village.

People in Bhatwari and Bachhni use mainly farmyard manure as a fertilizer. The application rate being about 4-5Q/nali or 22T/ha. A few farmers use urea also. The labour-use pattern is similar to that in the Chandrabhaga watershed.

Bhatwari village has 11 guhls. They are all unlined and their lengths vary from 100 to 150m, except for one which is about 200m long and irrigates the fields of all the 14 families in the village. These 14 families own just under 1.5 ha of irrigated land in Bhatwari, an average of 4 to 5 nalis per family. In Bachhni, irrigation water benefits 13 of its 22 families.

III. IRRIGATION, PRODUCTION AND SURPLUS

Chandrabhaga: Paddy and wheat are the main irrigated crops in the kharif and rabi seasons, respectively. When there is enough water in the summer, a third crop -- Zaid, usually maize or barseem (alfa-alfa) is planted along with vegetables. A small portion of the irrigated land, usually one nali (0.02ha), is devoted to onion cultivation during the rabi season. Table 2 gives the production data for the major crops.

For the paddy crop, the interval between the first and second irrigation is about 20-25 days, since the fields are dry to begin with and require more water. Irrigation is resorted to during the kharif season mainly to make up for inadequate rainfall, normally three or four times during the season. During the rabi season, the irrigation is required approximately every 20 days and the fields are normally irrigated five or six times a season. Onions require more frequent irrigation.

The yields of the irrigated crops are:

Paddy	40 kg/nali (2 T/ha)
Wheat	20-25 kg/nali (1.0 - 1.2 T/ha)
Onions	100 kg/nali (5 T/ha)

Most of the grain production is for self-consumption. Only two farmers in the region -- from Daunra -- sell paddy and wheat. The total sales are 16-18 quintals of paddy (basmati) and 7-8 quintals of wheat. Every family in Daunra sells onions in the market at nearby Narendranagar, the district headquarters. Vegetables are also sold here. The average sale of onions by Daunra farmers serviced by the government guhl is about 60kg.

The people in the area have expressed a desire to devote more area to growing onions, as against the present average of one nali (0.02 ha). The main constraint is the availability of water, particularly in the summer months. In Talaai, for example, onion cultivation began only three years ago, when the guhl was lined with cement and concrete reducing percolation and increasing the water available in Talaai.

Shorgad: Paddy and wheat are the main irrigated crops in the kharif and rabi seasons. A small amount of potatoes and onions are also grown on irrigated lands during the rabi season, for subsistence purposes. There is no Zaid or summer crop.

The productivity of paddy and wheat on the irrigated lands is higher than in Daunra and Talaai:

Paddy	60-80 kg/nali	(3 - 4 T/ha)
Wheat	25-30 kg/nali	(1.2 - 1.4 T/ha)

This is primarily due to the more frequent irrigation and the fewer number of trees on the agricultural lands in this area.

The main crops are foodgrains, for consumption needs only. There are no major markets in the region. There is no vegetable production due to unavailability of water in the summer.

IV. OMMUNITY PARTICIPATION AND MANAGEMENT

A strong element of community participation and management is discernable in the operation and maintenance of the traditional guhls. Even where farmers of different castes share a guhl, e.g., as in Bachhni, its maintenance is a coperative effort. The water distribution systems emphasize egalitarian techniques.

These are described below.

Operation

Chandrabhaga: The distribution of water from the guhls can be described best with reference to the biggest one, serving fields in Daunra and Talaai. The command area of this guhl is divided into 5 segments -- 3 in Talaai and 2 in Daunra. The segments are divided on the basis of the area irrigated. Each segment receives water for one day at a time, i.e., once after every 4 days. Each segment has a headman called a jawabdaar, who is responsible for the smooth functioning of the system.

Within each segment, the field closest to the head may receive water first. The distribution then goes on along the length of the guhl, to the tail-end. When a farmer's field has been irrigated, he closes up his entrance gate and lets the water into the next field. Irrigation of the segment in the next rotation begins with the fields that were not irrigated in the prior one. Usually there are mutual understandings among the users so that some changes can be made in this scheme. Usually the turn of a person comes once in 15 to 20 days.

The cycle of irrigation followed one year is reversed in the following year so that tail-enders receive water first and fields at the head, last. Thus, the people have built the concept of equity into the distribution system.

The number of users of the other traditional guhls are far less than of the government guhl ranging from to 30 families per

guhl. All these users in Daunra have access to more than one guhl. The same pattern for distribution of water is followed, except that their commands are not divided into segments. The fields get irrigation after every 12 to 15 days in these guhls.

Water related disputes are rare. If a person is caught taking water out of turn, a meeting is called of the other users. Usually a person is debarred from using water on his next turn.

Shorgad: Since the number of users per guhl is very small, the distribution system is quite different from the Chandrabhaga guhls. The person who tills his/her fields first has the right to use the water first, irrespective of the position of the fields. The irrigation sequence is therefore determined by the sequence of the start of tilling. The normal interval between subsequent irrigations is 3 to 4 days. Wheat does not require as frequent irrigation as paddy. Water disputes are unknown, since there is no scarcity of water.

Maintenance

Chandrabhaga: The maintenance of the community guhls is done by the villagers. These guhls are smaller than the government one and they irrigate smaller areas. Usually when there is a problem with the guhl, the person receiving the water at that time inspects it. Minor problems like accumulation of bushes, or cracks in the bunds are handled by an individual farmer. Major problems like landslides are tackled by the combined efforts of all the users.

The landholdings of the farmers in Daunra are quite scattered. People have lands at the heads and tail-ends of the guhls. Hence it is in the interest of every landholder to maintain the entire length of the guhl.

In the case of the government guhl, the beldaar (a State appointee) is responsible for its maintenance.

Shorgad: Cleaning of the guhls is undertaken before paddy transplanting (i.e., before mid-June) and after the paddy harvest (early November). The cleaning is done by the guhls' users. When a field is being irrigated, its owner and his/her family keep a watch on the guhl, removing any obstructions and plugging cracks or leaks.

V. STATE INTERVENTION

Nature of Intervention

In 1955, the district authorities provided funds for lining the main guhl, serving Daunra and Talaai, with lime and mortar; labour was provided by all the families in the two villages. In 1987, its management was taken over by the Irrigation Department. Since then, it has been re-lined with cement and concrete. A rock-filled structure has been made to block the flow of water in the main stream. A number of steel gates have been provided to guide the flow of water to the fields.

The Irrigation Department has appointed a beldaar for the operation and maintenance of the guhl. Maintenance operations by the department are done after the monsoon -- the period when the

major breakages occur. But the users do the routine or minor maintenance. The jawabdaars supervise the guhl's care in their respective segments.

Market-led Intervention

The State intervention to augment the production potential of the guhl in the Chandrabhaga watershed is significant. The affected villages are in reasonable proximity to the following urban markets:

Town/City	Road distance from Daunra & Talaai (approx.)	Approx. Population
Narendranagar	11 km	<10,000
Rishikesh	11 km	>30,000
Dehra Doon	56 km	>300,000

In fact, the main market for onions is in Narendranagar and the surplus basmati rice is sold in Rani Pokhri which is a satelite market for Dehra Doon and Rishikesh.

On the contrary, the urban centres in Chamoli are not easily accessible from the Shorgad watershed. They are also much smaller than the urban centres associated with the Chandrabhaga watershed. The urban centres associated with the Shorgad watershed are:

Town/City	Road distance from Bachhni & Bhatwari (approx.)	Approx. Population
Agastyamuni	6 km	<<10,000
Rudraprayag	20 km	below 10,000
Karnaprayag	45 km	below 10,000

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Even before the State take-over of the guhl, in Chandrabhaga, farmers in Daunra had demonstrated their ability to produce and sell onions in Narendranagar. It may be argued therefore that the State intervention here occured after a recognition of the market potential around the Chandrabhaga watershed. In this sense, the State intervention may be said to be market-led.

An Emerging Alienation

A second aspect of the State's intervention in the Daunra -- Talaai guhl, is the emerging alienation of the people from one of the most productive resources in the area. This fits into the classic pattern of alienation after take-over of common property resources by the State.

According to the villagers in Talaai and Daunra, ever since the government has taken over the main guhl it has been poorly maintained and the villagers also depend more on the government for its repair. Though the villagers clean the guhl and repair minor damages when the water is most needed, e.g., the summer months, major damages remain unrepaired. Thus, there are unlined patches in and near Talaai; a portion of the guhl destroyed in a landslide in 1989 has been replaced with a makeshift steel pipe, leading to continuous leakage and the threat of another landslide. In contrast, the villagers continue to put adequate and regular maintenance effort into the community guhls.

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Local Response to State Intervention

Finally, some questions arise about the local population's response to the State take-over of the Daunra-Talaai guhl. According to the villagers, there was no resistance to the State take-over of the guhl. Obviously, one reason was the prospect of enhanced water supply, leading to higher production.

Another probable reason could be the absence of a strong all-round tradition of common property resource management in the Chandrabhaga region. For example, there is no community management of forests in this area (PSI, 1991). (Community managed forests exist in Chamoli district.) It is interesting that in Talaai, several farmers are paying a tax to the Irrigation Department, which is due only for lined guhls, even though portions of the guhl are not lined. Hence two questions emerge: Would the response of the local people to the State take-over of guhls vary with the local tradition of CPR-management? If there had been a strong tradition of community management of all CPRs, could the farmers of Daunra and Talaai have said to the State, "You line the guhl, but leave its operation and maintenance to us"?

VI. CONCULSIONS

The observations reported above demonstrate that in the community managed guhls egaliterian and co-operative values are built into their operation and maintenance systems. The availability of adequate water in summer enables Garhwali farmers to plant a third crop and/or generate marketable surpluses.

These observations also lead to two hypotheses and one question about State interventions and guhls in the Garhwal hills. These are:

Hypothesis 1: The State intervention is market-led

Hypothesis 2: The State intervention leads to alienation.

Question: Does the response of the local people to the State take-over of guhls vary with the local tradition of CPR management?

Guhls lined with cement and concrete by the Irrigation Department in other villages of Tehri-Garhwal and Chamoli districts offer opportunities for further research.

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Appendix

Guhls receive water from springs and guide it to cultivated fields through openings or gates. Small rocks along with bushes are used to obstruct the flow in the spring. As a result, the water level rises and enters the guhl. The guhl bed at the head is higher than the river bed. When water is not required in the guhl, i.e., when there is excess water, the rocks and bricks are removed and the spring is allowed to follow its natural path. This avoids damage to the guhl.

The channels are usually 10-12 inches wide with a square or trapezoidal cross-section. The length of the guhl depends on the discharge available in the spring and the distance of the fields from the source.

In the traditional guhls a simple method of lining is used to minimize percolation losses. The farmers apply animal dung at the head of a guhl. The dung mixes with the water and settles along the bed of the guhl. It is claimed that the dung particles block the pores through which the water percolates, thus increasing the transmission efficiency.

Technology Upgradation Potential

The guhl system lends itself to technological upgradation. The Garhwal region has a high proportion of perennial streams, though their flow levels vary enormously (INTACH, undated). One way to enhance delivery of water to the fields is to minimize water losses through percolation, seepage or breaches in the

channel. This can be done by lining the channels with a non-permeable material.

The environment, however, poses some constraints on the upgradation potential. For example, the Irrigation Department's approach of lining the channel with cement and concrete can create problems in areas where the channel is cut into a sedimentary rock structure. The pressure on the support base can lead to landslides, even major ones. (An entire hillside came crumbling down near Gopeshwar in Chamoli district where a long cement and concrete channel had been laid). A suggestion has been made that the channels can be lined with low density polyethylene sheets (INTACH, undated). Plastic pipes may be another alternative.

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Table 1

1. Name of Village	Daunra Mai Kanda	Talaai	Bachhni	Bhatwari
2. Altitude (MSL)	400-1650	650	1425	1325
3. Area (ha)	129.6	42.62	3582	95.16
4. Population	600	175	133	83
5. No. of households	120	33	22	14
6. Cultivated area (ha)	40.06	16.06	12.14	6.10
7. Irrigated area (ha)	21.38	10.12	2.51	4.92
8. Caste	Thakur - 113 Harijan - 6 Brahman - 1	Thakurs only	Thakur - 17 Harijan - 5	Thakurs only
9. Land Ownership (ha/household, approx.)	0.4	0.4	0.4	0.4

Table - 2

S. NO.	Name of Village	Paddy			Wheat			Onion		
		Irrig Area (ha)	Yield (Q/ha)	Mrk Srp (Q)	Irrig Area (ha)	Yield (Q/ha)	Mrk Srp (Q)	Irrig Area (ha)	Yield (Q/ha)	Mrk Srp (Q)
1.	Daunra Mai Kanda	21.38	22.3	17	20.76	12.6	7.5	N.A.	100	70
2.	Talaai	10.12	25.0	0	9.99	12.0	0	IS	N.A.	0
3.	Bhachhni	2.51	22.5	0	1.44	13.5	0	IS	N.A.	0
4.	Bhatwari	4.92	35.7	0	4.69	13.4	0	IS	N.A.	0

Mrk Srp : Marketed Surplus
N.A. : Not Available
IS : Insignificant

Cultural Politics of Ecology: Resistance for Space and Spaces of Resistance in Jharkhand, India

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Paper to be presented at the conference on "Common Property, Collective Action and Ecology," Organized by the Joint Committee on South Asia of the Social Science Research Council and American Council of Learned Societies to be held at Center For ecological Science, Indian Institute of Science, Banglore August 19-21,1991.

(This is a paper in progress. Your comments are most welcome. My Address: Department of Anthropology, 308 Bowne Hall, Syracuse University, Syracuse, New York 13244-1200)

Why Cultural Politics of Ecology?

For the last century, the hilly terrain of Jharkhand in east-central India, has been the site of numerous local protests against the state management of land, forest and water resources. These ecological movements are accompanied by the regional autonomy movement to carve out a separate state, which will include 21 districts now distributed among four states of Bihar (12 districts), West Bengal (3 districts), Orissa (3 districts) and Madhya Pradesh (3 districts).[1] While the ethno-regional movement seeks political autonomy on the basis of regional underdevelopment and ethnic discrimination; the ecological movements challenge the monopoly of the state over the use and management of natural resources such as water, forest and land.

The Jharkhandi case compels me to ask: How should we explain the phenomena of Jharkhandi resistance? How could we relate political, cultural and ecological aspects of their movements? How are ecological crises, the emergence of ethnicity and the developmentalist state linked in the equation of power and knowledge ? Do these movements reflect spatial worldviews of marginalized Jharkhandis that are different from those of industrialists, miners and developmentalists? Do Jharkhandis who participate in these movements have the "realm of imagination" which Harvey (1989:222) defines as "the mental inventions, discourses, plans, and symbolic spaces that imagine new meanings or possibilities for spatial practices?" What kinds of theoretical/practical lenses do we need in order to maintain an appropriate interpretive balance between space, time and social being?

I will explain the above questions through an approach which I call the "cultural politics of ecology." I broadly conceptualize ecology as encompassing a group of people residing in a certain space. And when there are people living in a space, there are at stake, culture, history, language, identity and autonomy. In other words, the relationship of people to space is constituted by their relation to each other and thus entail social conflicts. Because in this process, as Harvey (1989:254) following Lefebvre (1974) argues, there is "a tension between the free appropriation of space through private property, the state, and other forms of class and social power." Such tension can be seen not only in the appropriation of material space but also in perception and imaginings of space.

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[1] The proposed Jharkhand state covers a territory of 187,646 sq. ms (3.2% of the total geographic area of India) almost half of which lies within the state of Bihar.

I seek to highlight the spatial dimension by analyzing tensions between Jharkhandi ethnic construction of space vis-a-vis that of the developmentalist/integrationist Indian nation-state. I will show that in a highly stratified society such as India, the appropriation of space is a contested terrain between competing social actors: haves vs. have-nots, men vs. women, city dwellers vs. rural peasants, marginalized groups vs. the dominant groups. If space is taken as always "constituted by conflict." I will also look both at how dominant groups try to articulate and exercise hegemony around space and in turn, how that hegemony is contested by subordinate groups aspiring to appropriate that space.

I will enrich the spatial aspect of social conflict by looking at it as a form of discourse (Foucault 1980) = as well as hegemony (Gramsci 1971, 1985; Guha 1989).≡ Because as I have demonstrated elsewhere (Parajuli 1991), hegemony is constructed within the field of discourse. In other words, the Indian state's hegemony over Jharkhand can be elucidated through its discourses about development, ecology or ethnicity. At the same time, its limits on hegemony can be demonstrated by articulating the discourses on ecology, development and ethnicity from Jharkhandis themselves. The roots of "cultural politics of ecology" goes even deeper. Its depth can be appreciated by showing how Jharkhandis are not only resisting in order to regenerate their autonomous spaces but they are also creating "spaces of resistance." "Spaces of resistance" are those arenas of lived spaces which are informed by the historical memory of struggles. By highlighting the dialectics between "resistance for space" and "spaces of resistance," I will show how Jharkhandis have kept the

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= Discourse in the Foucauldian sense, involves a series of material elements and processes which articulate it on a domain of things and through which the production of truth is organized. Discourse also articulates relations between knowledge and power. It determines ways of doing things through which the real is given shape by those who think and manage it (Foucault 1980; Parajuli 1991).

≡ Hegemony in Gramscian terms is a predominance obtained by consent rather than by force of one class or group over other classes through myriad ways in which institutions of civil society diffuse and popularize the world views of the ruling classes to such an extent that the subaltern classes perceive and evaluate social reality in that context. In other words, it is the orchestration of the will of the subordinates into harmony with the established order of power (Carnoy 1984; Comaroff and Comaroff 1991:13-27).

avenues of protest within their own cultural boundaries, relatively safe from the reach of the state's symbolic/repressive apparatuses as well as the integrative threads of the market economy.

Thus ecological crisis in Jharkhand is not due to the "tragedy of the commons", as Hardin (1968) would have it (see Herring 1990; Runge 1986; McCay and Acheson 1990 for critical appraisal) but due to the "commoner's tragedy"[4] which is a product of the social dynamics of resource exploitation. As reflected in the tensions between the premises of "tragedy of the commons" and of "commoner's tragedy", there are indeed, as says Harvey (1989: 335), "real geographies of social action, real as well as metaphorical territories and spaces of power that become vital as organizing forces in the geopolitics of capitalism."

"Annihilation of Space by Time": The Spatial Transformation and Ecological Crisis in Jharkhand

Situated at an elevation of 500 to 1,000 meters above sea level, Jharkhand is a distinct ecological region with an unmistakable identity that separates it, geographically, ethnically and culturally from the surrounding plains of northern Bihar and West Bengal. As the name "Jharkhand" itself suggests (Jhar meaning "forest" and Khand meaning "area"), the identity of Jharkhandis depends on the abundance of forest. By now Jharkhandis realize that their identity is severely threatened. Because while as a mountainous and hilly terrain, Jharkhand needs a forest cover of 60 per cent to have a balanced ecology only 22 per cent of its land remains forest covered (Fernandes et al 1988). According to one estimate, 1 per cent of the total forest is encroached on every year for purposes of agriculture, dams, mines, industries and timber (Parajuli, 1990). Forests, within districts of Jharkhand region which comprise four-fifths of the forest of Bihar state, are clear-cut in order to generate revenue which is utilized outside Jharkhand.[5] Similarly, construction of big dams, irrigation canals, roads, industries and mines have primarily benefited outsiders but causing large scale alienation of land from native Jharkhandis.

As ecological deterioration has threatened the basis of Jharkhandi identity and livelihood in recent years, both ethno-regional and ecological movements try to address the problems of diminishing space and threatened survival, regional autonomy and

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[4] this apt phrase is borrowed from Goldman (1990).

[5] For example, Areeparampil (1987) shows that in the year 1976-77, the Singhabhum district alone generated Rs. 315 million which constituted 22 per cent of the forest revenue of Bihar state.

ethnic identities.. These movements are not, however, new. The recorded history of resistance movements in Jharkhand, dates back as early as 1600 A.D. Since then their major focus has been to redress the paradox that Jharkhand is simultaneously the homeland of a large adivasi population and the cradle of timber, minerals and heavy industry in India. Contemporary movements are the continuation of historical struggles which had tried to achieve political and cultural autonomy for this region on the basis of: a. the administrative unity of the region; b. exploitation of tribal people and the mineral, land, water and forest resources by the dikus (outsiders);♠ and c. ethnic distinctiveness of tribals and native Jharkhandis such as Sadans.7 A Jharkhandi now is defined not in terms of tribal identity alone but in terms of those who a share common territory and a common history of exploitation by the dikus. Thus besides tribal groups, sadans who comprise at least 55 per cent of population are considered Jharkhandi. Only those 10-15 % who have migrated from outside and are in exploitative relations with native Jharkhandis are considered non-Jharkhandis (Jharkhand Co-ordination Committee Manifesto, 1987).

Corbridge (1986, 1988) argued that new capitalist relations had largely destroyed the ethnic bonds and communal cultural traits of Jharkhandis. As an example, he mentions that a few adivasis who gained remunerative employment in the iron ore and copper mines amassed so much savings that they paid for the recent opening of the protected land markets. This new phenomena he argued, basically destroyed the patterns of egalitarian land distribution among the adivasis. It is true that Jharkhand has undergone massive spatial transformation over the last two centuries. However, I argue, spatial transformation has not erased ethnic identities; on the contrary, it has recreated its own spatial dimensions of resistance.

To illustrate my point, I will invoke the neo-Marxist debate on space as initiated by Henri Lefebvre (1974) and elaborated by David Harvey (1989, 1990) and Edward Soja (1989) who have shown that "command over space is a fundamental source of social power

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♠ According to Sinha, et al (1969), dikus are non-Jharkhandis in general and include Zamindars, Brahmins, Hindi speaking people etc. As the notion of Jharkhandi is changing the notion of diku is also undergoing change.

7 The Sadans of Jharkhand region are of various castes but are not included within the scheduled tribes list. Sadans are supposed to have migrated to this region at least from 500 to 1,000 years ago from various parts of northern India. Recently, they have begun to identify more with the primarily tribal culture of Jharkhandis than with the Hindu culture (Devnathan 1988; Kesari, 1986).

and that any change in social power entails a reorganization of the spatial basis of that power"(Harvey 226, 238). Elaborating on this tradition, David Harvey develops a grid of spatial practices, where conventional geographical categories-- the use, control and production of space-- crosscut dimensions of material practices (experience), representations of space (perception), and spaces of representation (imagination) (Harvey 1989: 218-222 also see Enslin 1991). I find this multidimensional approach most relevant to Jharkhand in order not only to document spatial transformation but also to appreciate cultural representations of space. This framework also helps me to overcome the limits of the existing accounts about Jharkhandi resistance.

Using political economy approach Corbridge and others (Jones 1978; Minz 1968; Sengupta et al 1982; Kesari 1986) accurately define Jharkhand as an 'internal colony' and a region of super-exploitation. They also justify the demand for a separate Jharkhand state by pointing to the fact that the value of what goes Jharkhand is far greater than what comes in. Data abound to substantiate that Jharkhand region has the poorest people despite being the richest in natural resources. For example, although Jharkhand comprises 2.5 per cent of India's land and population, it has 25 per cent of India s mineral wealth, 72 per cent of its copper deposits, 52 per cent of its mica, 48.6 per cent of its coal, 38.4 per cent of its bauxite, 34 per cent of steel ingot production and 26 per cent of the output of all heavy engineering goods (Jharkhand Coordination Committee, Manifesto 1987; JMM * manifesto 1973). Altogether one-fifth of India s total public sector investment is in Jharkhand.

Available Jharkhandi data elucidates the theory that it is in the resource rich but culturally subordinated areas that the logic of uneven capitalist development takes its strongest hold. These are the areas where profit-seeking capitalism realizes its cruel law - regional and spatial inequalities in order to continue the motion of capital (See Berman 1982; Soja 1989:28-9). This is why the contradictions between the requirements of the state or dominant class and those of the local population are comparatively more intense in Jharkhand. A similar level of intensity can be found in Utterakhand, Western Ghats and most of the tribal belt in middle India. The resurgence of ecological movements in these areas are symptomatic of this parasitism.

Although very useful in highlighting the unevenness of

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* Jharkhand Mukti Morcha (JMM) is the strongest political party in Jharkhand. JMM emerged as a regional party in 1972 after a period of radical agrarian struggle known as dhan katti andolan (forcible harvesting for the restoration of alienated land) during 1968- 1975.

capitalist development and in showing how both the colonial and post-colonial policies have transformed Jharkhandi space, the political economy approach falls short of capturing either the dynamics of "resistance for space" or "spaces of resistance." This is perhaps due to in-built bias in Marxist historiography in which as Foucault (1980:70) has accurately shown space is consistently treated as fixed, dead, undialetical, whereas time is treated as richness, life, dialectic. As Soja (1989) has pointed out, "like capitalism itself, the critique of capitalism seemed to be propelled through annihilation of space by time."* It was presumed as if social forms were relatively autonomous from the spatial context. Given the prominence of spatial motivation among Jharkhandis in their movements, I agree with Foucault when he says,"a whole history remains to be written of spaces- which would at the same time be the history of powers- from the great strategies of geopolitics to the little tactics of habitat" (1980:70).

This gap in Marxists accounts becomes even more obvious when the hegemonic concept of "class" overshadows all other social relations such as gender, race or ethnicity. Class claims agency over and above the symbolic productivity of all these actors situated in contesting positions in various relations of domination and subordination. Jharkhand is a case in point. It is where the state-sponsored project of development has led to spatial transformations to such an extent that the perception of Jharkhandi self which is embedded in the landscape, informs the motivation of ethno-regional and ecological movements. Through such spatial reference Jharkhandis establish a positive relationship with the natural world and among themselves. Space is, as argues Watts (1988) "thus a crucible within which experiences are contested, a contest that is fundamentally cultural in the active sense." Thus as says Harvey(1989:257), "there can be no politics of space independent of social relations. The latter give the former their social context and meaning."

In other words, we have to take space as constituted by social conflict. Only then we begin to understand why Jharkhand --the "industrial heartland" of India, is at the same time, a "hotbed of ethno-regionalism." Only then we can comprehend why despite hosting one of the most sophisticated industrial and mining sectors, Jharkhand remains a nation of "coolies" in India.[10] Only then we can explicate why Jharkhandi identity did

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* Exceptions among the Marxists are Williams (1973) and Short (1990).

[10] In 1988, 60 per cent of the more than one million migrant agricultural laborers in Punjab were from tribal communities of Jharkhand. There are also 450,000 Jharkhandis working in Assam tea gardens (Faraiuli 1990).

not vanish despite such massive proletarianization? We begin to as, as Kumar Chandra Mardi, one activist in Jharkhand movement asks: why do the Jharkhandi people keep on struggling even when their leaders are more than once being co-opted by the state?

Let me first show how overwhelming is the spatial transformation in Jharkhand. Stretching 450 km from Raniganj coal-fields in West Bengal to the Sundargarh iron ore and magnese deposits in Orissa, this zone contains the bulk of India's basic, heavy and metallurgic industries (Shah, 1986). The first mining operation in Jharkhand began as early as 1775 in Raniganj, just a decade after the British occupation of Chotanagpur. This was followed by three huge coal-fields in Jharia, Bokaro and Karanpur. In 1907, India's largest iron and steel company became established in Jamsedpur and transformed the economy and ecology of the region.

Jharkhandis have paid a heavy price for these industries economically, culturally and politically. The primary impact is the underdevelopment of Jharkhand itself. As one Santal women from a village near Bokaro industrial center told me, "our villages are like darkness beneath the lamp." Her remarks are well founded. For example, While 30 per cent of India's land is irrigated, only 7 per cent of Jharkhand is irrigated. While 27.3 per cent of India 's villages are electrified, only 5 per cent of Jharkhand is electrified. While 80 per cent of Bihar state's revenue comes from the Jharkhand region, Jharkhand receives only 10-15 per cent of its budgetary allocation. A.K Roy, one of the founders of Jharkhand Mukti Morcha expresses this dilemma between development and Jharkhand:

> So between development and non-development, the choice for the people of Jharkhand is like that between the frying pan and the fire. Under-development means languishing death. Development means extinction.

The second impact is the stagnation of Jharkhandi agriculture and massive migration. British as well as Indian capitalists venturing into Jharkhand kept agriculture stagnant in order to make available a large surplus labor force which could be hired for low wages (Rothermund and Wadhwa 1982). As Jharkhandi peasants began to be alienated from land, capitalists prospered. They easily acquired land from displaced peasants for the expansion of mines and industries. At the same time, they acquired a cheap labor force of landless adivasis to work in the mines and industries in Jharkhand and in the tea and coffee plantations in Assam and West Bengal. As a result, while 19 per cent of Chotanagpur's tribal population had out-migrated by 1891,

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out-migration accounted to 33 per cent by 1921 (Weiner 1978; Badgaiyan 1986). Local Zamindars, on the other hand, supplied cheap labor to the mines and industries by taking concessions (Das 1983).

The third impact is the land alienation from native Jharkhandis to non-Jharkhandis. An exact picture of the extent of land alienation because of big industries, mining and other projects is not available. Following are some examples of the extent of displacement caused by big projects.

a. Central Coal-fields Limited (CCL) has acquired 120,300 acres of land since 1971 displacing 32,750 families.

b. Tata Iron and Steel Company (TISCO) acquired 3,564 acres of land from the villages of Sakchi, Nutabdi, Susnidih and the northern part of Jugsalai at the cost of Rs. 46,332 in 1907.

c. The Rourkela Steel Plant in Sundargarh district of Orissa, displaced 32 villages with 2,465 families of which 75 % were adivasis out of which only 200 families were rehabilitated (Dhebar Commission Report, 1982).

c. The Heavy Engineering Corporation of Haatia, Ranchi acquired 9,200 acres of land from 25 villages displacing 2,198 families in 1958.

d. Bokaro Steel Limited was built in 30, 984 acres of land of 46 villages displacing 12,487 families between 1967 to 1980.

e. Maithan Dam has submerged 10,470 hectares of land displacing 28,030 people of 52 villages. Masanjore dam also has submerged 144 villages in Bihar and West Bengal.

f. The Subarnarekha dam (now postponed because of popular resistance) will submerge 52 villages completely and 125 partially displacing at least 100,000 people.

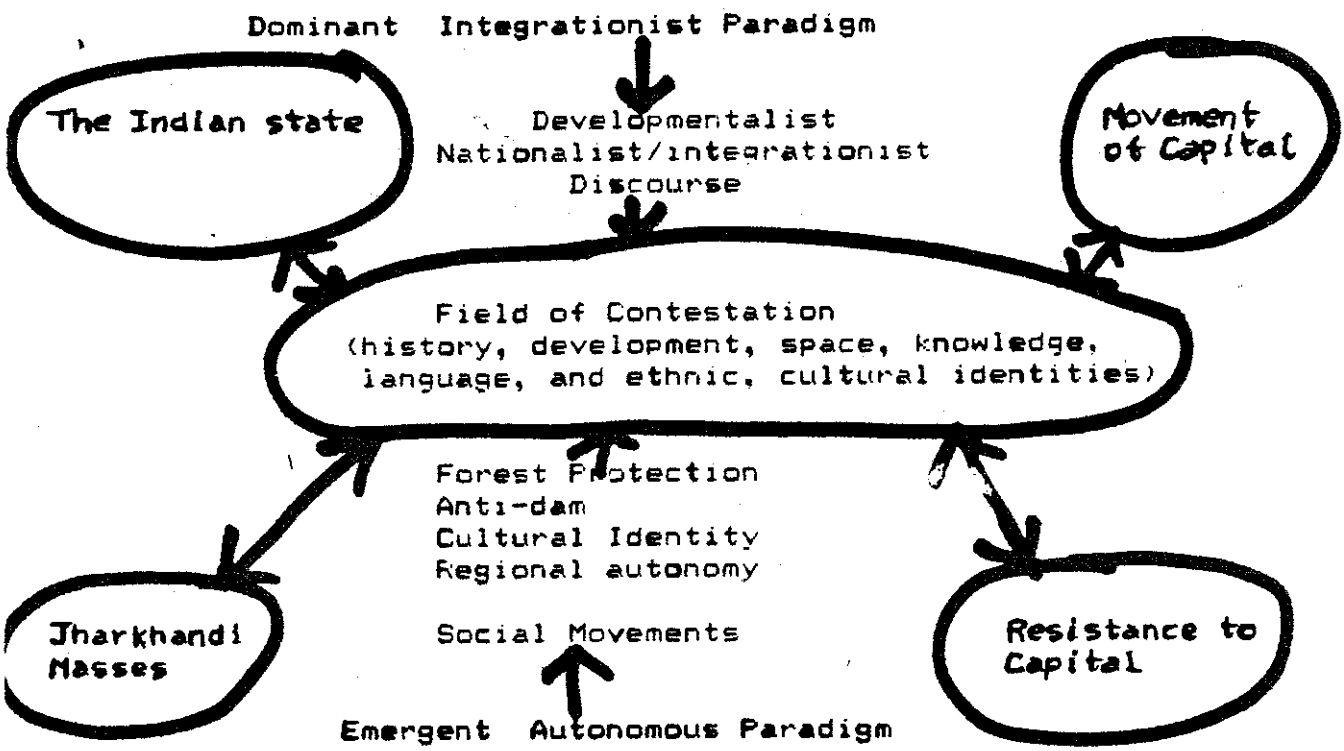
Either in the case of mines, industries or development projects, the original owner had been forced to become a "coolie" on his/her own land. The agencies(both private and public) used trickery, fraud and the forceful imposition of contracts. Land acquisition for the Subarnarekha dam was also acquired by violating guarantees provided by earlier reforms. For example, the Chotanagpur Tenancy Act, 1908 has provisions which safeguard the alienation of adivasi land for industries or other projects. Those provisions were amended in 1957 so that land could be acquired for industrial and national purposes. This amendment argued that those displaced from land could be compensated through employment or cash compensation (Kulkarni 1989). However, in reality, Jharkhandis received neither

compensation nor employment (Parajuli 1990: Chapter 6).

From Spatial Transformation to Movements for Space

In a study of ecological and ethno-regional movements I (Parajuli 1990) showed how Jharkhandis had begun to articulate a critique of uneven and exploitative industrialization process while resisting displacement from big projects. I also argued that Jharkhandis struggling to stop such projects did not share either the same physical space or the representations of it with those (primarily the Indian state, capitalist class and the international funding agencies such as the World Bank) who had imposed these projects upon them. Jharkhandi space was appropriated while excluding them from the realm of policy making, in design of program or the implementation of these programs.

Figure 1
Contestation Between the Indian State and Social Movements in Jharkhand



As I have shown in the above figure, Jharkhandi ethnicity also has its own notions about space, identity, history and environment. However, they are not isolated from the outside world as some isolationist cultural anthropologists try to

represent but are always in contact and in contestation with the dominant world. To try to sympathize with Jharkhandi movements by projecting them as an isolated ethnicity is, as Renato Rosaldo says, "like speaking of the downtrodden without noticing the people stepping on them"(Rosaldo, 1990:28). The evolution of Jharkhandi nationalism can only be understood in relation to the Indian state's attempt to define Jharkhand in terms of its own orbit of power.

Poulantzas (1980) had argued that the state expresses the totality of political structure through the material organization and practical techniques of control by inscribing its domination in the very constitution of its territorial and cultural domain, of its historicity of its subject citizens. The Jharkhand region for example, is a product of the arbitrary creation of state boundaries in British India. The states of West Bengal, Bihar and Orissa are themselves very new. Bihar became a state only after 1912, when it was separated from Bengal Presidency. Orissa became separated from Bihar after 1930. As officials redrew boundaries in the twentieth century, they no longer recognized the unique political and cultural character of Jharkhand. They lumped most of Jharkhand within Bihar state and the remainder within the states of Orissa, West Bengal and Madhya Pradesh.

Bihar state, on the other hand, sought solutions to the problems of overpopulation in the plains at the expense of the Jharkhand plateau. The de-tribalization of Jharkhand became a legitimate policy of the Bihar state government after 1956. The Bihar government divided the state into three geographic regions : north-Bihar plains, south-Bihar plains and the plateau region. In the name of bringing demographic balance, the people of the first two regions were encouraged to migrate to the sparsely populated Jharkhand plateau. The Jharkhand plateau became a place where surplus people from agriculture in the two other areas could go for gainful employment in industries, mines and bureaucracy.

In essence, such arbitrary boundaries on the one hand, and deliberate policies of deterritorialization have led to spatial crises for native Jharkhandis. While in 1951, the tribal-non-tribal population ratio was 60/40, in 1981, it became 40/60, just the reverse in 30 years (Munda, 1986).

The Jharkhandi notions of a 'nation' and 'culture' can thus be juxtaposed to the Indian state's notion of a 'state' and 'society'. Here my contention is that although the nationalist elites tend to "hijack the nation to the orbit of the state" (Dommen 1991: 21), marginalized groups such as Jharkhandis insist on a distinction between 'nation' and the'state' (Seth 1989, Kothari 1989).

As a modern capitalist state, the Indian state itself works

to constitute the modern nation in its dimension by homogenizing under the aegis of commodity, capital, the space of circulation of commodities and capital. As Poulantzas (1980) argues, the first fruit of territory, considered as a constitutive element of a modern nation are written into a capitalist spatial matrix (1980: 104). The modern nation appears as a product of the state, since its constitutive elements (economic unity, territory, tradition) are modified through the state's direct activity in the material organization of space and time. Poulantzas (1980: 113-114) writes:

> In the capitalist era, a nation without a state of its own is in the course of losing its tradition and history: for the modern nation-state also involves eradication of the traditions, histories and memories of dominated nations involved in this process. The state establishes the modern nation by eliminating other national pasts and turning them into variations of its own history: modern imperialism, too, involves homogenization of temporal sequences and assimilation of histories by the nation-state. The modern demands for national autonomy and a national state are equivalent, within capitalist historicity, to demands for a national history (Underline mine).

The importance of this contestation over space can be seen only when we recognize that subalterns create their own counter-space not only in the political society but also in civil society. Thanks to the pioneering works of Vandana Shiva (1988), Bina Agarwal (1991), Gail Omvedt (1987) and many other individuals/groups such as Manushi (Journal of women and society), we can now discern elements of women's counterspace in Indian society, ecology, agriculture and political culture. For example, Shiva (1988) rather romantically, but bravely portrays the cosmology of pre-colonial rural India in which nature is conceptualized as mother goddess, prakriti or aranyani, the forest goddess whose power was that of sakti. She gives prominence to women's ecological knowledge. Because "nature herself is the experiment and women as sylviculturalist, agriculturalist and water resource managers, the traditional scientists" (P. 38-41). Women's militant involvement in ecological movements, she argues, challenges the prevailing notions about what constitutes knowledge and who the knowers are.

Although it is debatable whether women in pre-colonial Indian society were as powerful as Shiva projects, her assertion that modern science and state have further marginalized women's worth and status is pertinent. The feminist debate on environment in India has definitely made it clear as Bina Agarwal (1991) argues, that women are affected by environmental decline in a gender specific way. At the same time, women are active in movements of environmental protection and regeneration, often

bringing to them gender-specific perspectives. Such perspectives articulate interests generated by women's position in the division of labor within productive and reproductive systems.

In similar vein, Nancy Fraser (1990:67) has argued for a subaltern counter-public sphere which can not be enveloped within Habermas's formulation (Habermas 1989) of a common public sphere.

> History records that members of the subordinated social groups, women, workers peoples of color and gays and lesbians- have repeatedly found it advantageous to constitute alternative publics. I propose to call these subaltern counterpublics in order to signal that they are parallel discoursive arenas where members of subordinate groups invent and circulate counterdiscourses, which in turn permit them to formulate oppositional interpretations of their identities, interests and needs.

Although satisfactory explication of the debate on public sphere is outside the scope of this paper, I refer to it to show that meanings of counterspace must not be understood as the "free play of polarities and pluralities in the homogeneous empty time of national community." Instead, the aim of cultural difference is, in the words of Homi Bhabha, to :

> re-articulate the sum of knowledge from the perspective of the signifying singularity of the 'other' that resists totalization - the repetition that will not return as the same, the minus-in-origin that results in political and discoursive strategies where adding to does not add-up but serves to disturb the calculation of power and knowledge producing other spaces of subaltern significance.... Cultural differences marks the establishment of new forms of meaning, and strategies of identification, through processes of negotiation where no discoursive authority can be established without revealing the difference of itself (Bhabha,1990:312-13).

Jharkhandi ethnoregional and ecological movements are symptomatic of this "difference," Bhabha talks about. These movements search for a national history which is outside the perview of the way the Indian state tried to accommodate different nationalities under different legal provisions such as the Sixth Schedule for north-east and the Fifth Schedule in some districts within Jharkhand. The recent proposal of COJM on Jharkhand, which was rejected by the movement, is also a mixture of all possible forms of arrangement under which power can be more decentralized and still remain within the welfarist schema of the Indian state.

The question posed by the Jharkhandi movements is precisely this: can the nation-states arbitrate in conflicts between dominant and subordinate groups. Subordinate groups find that the state itself is tied to the dominant classes, which Madhav Gadgil calls the "iron triangle" comprising those who enjoy state subsidies(the urban industrialists and rich farmers), those who decide on subsidies (the politicians) and those who administer subsidies (the bureaucracy) (Gadgil 1990). While the Indian state has tried to integrate everybody as citizens (through democratic electoral processes) and consumers (through the free market), the Jharkhandi ethno-regional movement seeks autonomous social governance. Jharkhandi ethnicity acts as a powerful rebuttal to the efforts of integration by the capitalist Indian state by affirming the local, the regional and the ethnic.

Jharkhandi Counterspace: Ecology, Ethnicity and the State

Jharkhandis are informed not only by class contradictions but also by ethnic knowledge. Thus Ranajit Guha (1983: 174) intuitively referred to ethnicity in Jharkhand during colonial rule that :

> The function of ethnicity could be and often was to help an insurgent group define its identity negatively. Not only was the diku to be excluded from it, but he was clearly marked out as the principal object of attack.

Jharkhandi ethnicity becomes even more militant on the question of ecology. For ethnicity creates "imagined spaces" articulating both a process of positive assertion of indigenous values while resisting the intervening values. In other words, Jharkhandi ethnicity is reproduced in two contexts: the internal one, that is of its own reproduction and the external one, that occurs by resisting the intervening culture brought in by outside religions (Hinduism and Christianity) as well as the Indian state. I found that Jharkhandis are reproducing their ethnicity internally by several revivalistic movements such as revitalizing sarna dharam as an antidote to both the Hindu and Christian religions; propagating adivasi scripts such as Santali, Mundari and Ho; reactivating baisis, and Munda Mani system; elevating Birsa Munda and Sidu, Kanu as cultural heroes.

For example, the institutions of indigenous governance such as **baisis** [11] among the Santals and Munda Manki [12] system among

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[11] Baisis are indigenous froms of local governances among the Santals which works as local adiministrative unit with hereditary officials. Out of several Baisis, offices of Praganna are formed. Both Baisis and Praganna have power to regulate

the Hos and Mundas are still thriving in Jharkhand. One of the major focus of ethno-regional movement has been to regenerate and reactivate such institutions as an alternative to the modern state apparatuses. For example, a recent meeting (April 27-28, 1991) of Santal Manjhis and Praganaits of Santal Praganna has reiterated to continue Baisi administration.[12] Through such revivalistic movements Jharkhandis produce and reproduce their ethnicity. The popularity of the green flag in Jharkhandi politics in the last decade also demonstrates that ethnicity has emerged in the center stage in Jharkhandi politics.[14] Ethnicity, in Jharkhandi context thus has a separate agency with its own, to borrow Mouffe's(1988) phrase, "symbolic productivity."

Jharkhandis try to have control over both what Marxian analysis calls the structural moment (relations of production, distribution and mode of consumption) as well as the superstructural moment (representations, symbols, ideas about production and surplus)(see Verese 1988). Although the immediate struggles in Jharkhand emanate from the loss of forest, land and habitat, the struggles are expressed through the culture itself. In Jharkhandi consciousness, alienation from forces of production is a loss of culture itself. They know that to be alienated from their land is to be deprived of autonomous specificity, will or creativity. The following song sung by those to be displaced by the Subarnarekha dam in Kolhan shows how for them the loss of land was equal to a loss of identity.

The country is going to ruin,
the land is floating away like a rolling tortoise

Santal life :political, judicial, economic and cultural.

[12] similar as Baisis but among Mundas and Ho adivasis.

[13] Personal communication with Arvinda Kumar of Loka Jagriti Kendra, Madhupur.

[14] This is clearly seen in the ways JMM emerged as a combination of green and red flags during (1972-1982) and divided into "red"and "green" flags after that. During (1972-1982), while the red flag represented the exploited class or the economic component, the green flag represented the subordinated adivasis, the ecological component. But now whereas the "red" flag remained with the trade unionist, A.K Roy, the "green flag" evolved as the most militant and popular political party under the charismatic leadership of Sibu Soren, a Santal peasant. The split between red and green flag in Jharkhand is not merely a personality clash between leaders but carries much deeper differences in the nature and mode of politics.

(Translation, Siddheswar Munda)

The history of Jharkhandi attempts to claim a counterspace goes back to at least last five hundred years. Jharkhand existed as a cultural concept long before it emerged as a political unit. Before the 6th century B.C, this region was known as Kalkavana (forest of the kalka). The region has also been known as Khukhra and 'Chotanagpur.' Under British colonial rule, Jharkhand acquired a distinct political identity. Widespread anti-colonial movements in the region forced the British to create a separate administrative unit. In 1780, they designated Jharkhand as "Ramgarh Hill Tract." In 1833, after the Kol rebellion of 1832, they redefined it by administrating it under the"South-West Frontier Agency (SWFA)." In 1930, the Simon Commission declared both Chotanagpur and Santal Praganna as partially excluded areas within the new state of Bihar.

Although the demand for a separate Jharkhand state was crystalized only in 1938 under British rule, Jharkhandis had been protecting their territory from outsiders (dikus) since feudal times. The notion of a Jharkhand as separate from other political units can be traced back to at least 1616. At that time Bagdi adivasis revolted against exploitation under local zamindars (landlords) who collected rents and taxes for the Mughal Empire (Singh 1985). Mughal rulers successfully crushed the peasant rebellion by requesting help from the British East India Company. As a reward for service, Mughal rulers then granted the territory of Calcutta to the East India Company. This rebellion was only the first of many that the British faced as they attempted to occupy Chotanagpur and Santal Praganna after 1760.

Several of the first effective struggles against colonial rule in India occurred in Jharkhand: Tilka Manjhi's rebellion of 1780, the ChotaNagpur tribal revolt of 1807-8, the Kol rebellion of 1832, the Ganga Narain rebellion of 1832-33. These initial movements were followed by the famous Santal Hul (1855-57), the Sardari Larai 1885-87) and the Birsa Ulgulan (1898-1901). Several anthropologists have termed these rebellions "messianic" and thus doomed to failure when confronted with the modern nation state (Derne 1985; Singh 1985). However, I argue that these early movements were anti-colonial in orientation and nationalist in scope. For example, the Santal Hul and the Birsa Ulgulan resisted both the increasing feudal and capitalist exploitation of Jharkhand. They encompassed all strata of the peasantry, irrespective of caste and tribe. Grounded in Santal and Munda symbols and rituals, these movements defined colonial intervention as polluting to the cultural fabric of Jharkhandi life.

The so called Kol rebellion of 1832, one of the strongest anti-colonial movements in Jharkhand, was in direct opposition

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to the agrarian stress brought by the colonial policy. Kols (derogatory name for Ho adivasis of Kolhan) had demanded the removal of village officials, and an end to police excesses, exorbitant taxes, and oppression by moneylenders, landlords and merchants (Jha 1964). In addition, they also demanded an end to the forced cultivation of poppies for opium production. The Kol movement succeeded in alleviating some grievances: rents were reduced; some Mundas and Mankis were reinstate; the area of Kolhan achieved some autonomy under the Wilkinsin rule. A special officer was designated to Chaibasa to look after the Kolhan Estate. Under Wilkinsin rule, the local government of Kolhan was to be conducted according to the Munda Manki system (Government of Bengal 1898).

All these struggles and movements aimed to free Jharkhandis from the bondage of Dikus, defined broadly to include both the British rulers and the local zamindars. As the East India Company decided to subjugate independent zamindars and introduce the British revenue system in 1767, local zamindars and people began to challenged the British administration. For example, the Bhumij Revolt of 1831- 32 (Jha 1967) to reinstate former zamindar Ganga Narain became a generalized insurgency against British rule (Dasgupta, 1985; Guha ,1983: 224). The movement declared all taxes as "obnoxious." The only tax system the rebels found just was half a rupee per plough per year (Roy 1912). As a result of this movement, British officials returned some alienated land to local zamindars.

Spaces of Resistance: Historical Memory and Consciousness

I had arrived in Jharkhand during the first week of August, 1987 to do fieldwork for my doctoral research. Accidentally, a new chapter in Jharkhandi politics also started since that same week. Nirmal Mahato, the then president of Jharkhand Mukti Morcha was murdered by the ruling Congress Party on the eighth of August. This event reactivated Jharkhandi movements and brought into focus the centrality of the politics of space, nationality and ethnicity (Parajuli 1990; Sharma 1990; Devnathan 1988).

Since 1987-88, the Jharkhand movement has achieved unprecedented gains. In the parliamentary election of November, 1989, JMM won 4 out of 11 parliamentary seats, two from Santal Praganneas and one from Singhabhum district and another from the industrial belt of Dhanbad. In the Bihar State Assembly, JMM won 19 out of 82 seats allocated to the areas of Santal Pragannas and Chotanagpur.

More importantly, the central government began to seriously consider the demand for a separate state in August, 1989 after a series of violent and non-violent mass mobilizations. The Indian state was forced to form the Committee on Jharkhand

Matters (COJM) to consider the demand for a separate state. This 24 member committee consisted of representatives from the government and from the various groups within the Jharkhand movement. COJM has historical significance. Because, for the first time in history, the Indian state officially acknowledged the Jharkhand problem. Prior to this it was dismissed as a separatist and anti-national movement.

Among other things, post-1987 Jharkhandi politics has made ecology increasingly prominent. For example, Jharkhand Mukti Andolan (Jharkhand Liberation Movement, hereafter JMA) emerged in the month of September, 1987 as a unified movement, although the various groups comprising it had been involved in forest and anti big-dam struggles during the previous decade. Deriving ecological and cultural insights from Mahatma Gandhi and from Jaya Prakash Narayan's movement for "Total Revolution," JMA has popularized the issue of ecological survival in Jharkhandi politics. Activists in JMA argue that Jharkhand needs to be a separate state not only because it is an exploited nationality but also because it is a distinct eco-region. For them identity, survival and ecological sustenance are the major indicators of Jharkhandi regional autonomy. In this sense, Gandhian thinking and ecological movements converge because the logic of self-reliance is the logic of place, people, and resources bound into locally self-sustaining ecological systems (Chowdhary, 1989).

The post-1987 phase of Jharkhand struggle has brought out several new questions. Why did the ethno-regional movement first surface in 1915, achieve height after independence during 1952-1953 and supposedly declined until 1968? Why did this movement resurface as a radical agrarian movement in 1968-75? [18] Why did the ethno-regional movement became more effective after the summer of 1987? More importantly, despite ups and downs, why does the Jharkhandi movement for a separate state continue?

The resurgence of the Jharkhand movement after 1987 is not an isolated event. It falls within the historical pattern of Jharkhandi movements: changing its form into political, religious and agrarian and ecological. Just as the ethno-regional movement which was dormant during 1963-67, reemerged as a radical agrarian struggle during 1968-75, the Jharkhandi resistance which was limited to electoral politics between 1976-86 has given away for a more radical pressure for regional autonomy since 1987. Similarly, a outwardly "religious"movement, led by Birsa Munda had followed an unsuccessful political movement of the Sardari larai (1880s) to redress grievances through legal petitions to colonial authorities (Macdougal 1977; Mahaswatadevi 1967).

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[18] See Sengupta ed (1982), specially Maharaj and Iyer (1982) for analysis of the emergence, performance and impact of this agrarian struggle in Jharkhandi political culture.

Disappointed with political means to achieve justice, Sardars wholeheartedly supported Birsa Munda's use of supernatural beliefs to shift the struggle into religious grounds. In the mid-nineteenth century, the "religious" Kherwar [1] movement, followed the failure of the anti-colonial movement, the Santal Hul.

In each of these shifts from political to religious or ethno-regional to agrarian/ecological, Jharkhandis are not giving up one struggle in favor of another. Instead, they are passing through different phases of the same struggle. As E.P Thompson in The Making of the English Working Class, has shown religious movements and political movements can represent two different moments within the same struggle. As political action gains force, religious fervor decreases. Subsequently, as political hopes confront disillusionment and betrayal, religion revives once again.

I will highlight this dynamic process in Jharkhand by using the Gramscian notion of hegemony which is structured through a series of relations marked by an ongoing political struggle over competing conceptions and views of the world between dominant and subordinate groups. The uniqueness of the schema of hegemony is that even the most persuasive structure of dominance is always and necessarily open to resistance (Guha 1989). Similarly, resistance ranges from subtle collaboration to active resistance. To quote Comaroff and Comaroff (1991:31):

> Just as technologies of control run the gamut from overt coercion to implicit persuasion, so modes of resistance may extend across a similarly wide spectrum. At one end is organized protest, explicit in moments and movements of dissent that re easily recognizable as "political" by western lights. At the other are gestures of tacit refusal and iconoclasm, gestures that sullenly and silently contest the forms of an existing hegemony. For the most part, however, the ripostes of the colonized hover in the space between the tacit and the articulate, the direct and the indirect. And far from being a mere reflection - or reflex expression- of historical consciousness, these acts are a practical means of producing it. (emphasis original)

Following Guha (1989), I identify the elements of this dynamically conflictual relation as: coercion and persuasion as strategies of the Indian state and collaboration and resistance as the strategies of Jharkhandis.

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[1] Santals are also called 'Kherwar'

Figure 2
Processes of Hegemony and Resistance in Jharkhand

Constituent Elements	Pre-colonial	Colonial	Post-colonial
Coercion	Danda	Law and Order	National Integration
Persuasion	Sanskritization	Schedulings of tribes	Development/ Protection
Collaboration	Hinduization	Conversion to Hindu and Christian religions	Participation in dev.
Resistance	Minor Revolts/ Migration	Agrarian/religious anti-colonial movements	Ecological/ ethnoregional/ cultural revival movs

Adapted From Parajuli (1990).

Development Constituted in Social Conflict

As I showed in the above figure, ideology of development of tribal communities by the Indian state is a continuation of the ideology of 'sanskritization' in pre-colonial India and 'scheduling of tribes' in colonial India. While the Indian state considered various ethnicities as obstacles to development (Elwin 1963; Kothari 1988; Roy-Burman 1989), the communitarian values and practices of Jharkhandi communities were not conducive to the expanding market economy, political liberalism and individualism. The new notions of "national integration" and "assimilation" were taken as the preferred ideologies for the governance of indigenous peoples. However, as the Jharkhandi case shows, the state is constrained in its ability to represent people-nation (in Gramscian sense) because it emerged by neglecting the indigenous social fabric of institutions, social movements, networks of communitarian solidarity networks which made up civil society in pre-state societies.

Jharkhandis use the notion of diku and consider externally-induced development as "diku chalaki" as a form of resistance to external forces. Diku is a Jharkhandi word which means "outsider", "exploiter." Chalaki is a Hindi word which means cleverness, wiliness, craftiness, the capacity to cheat, to circumvent a rule, to beat the system." This phrase captures at the deepest level not only how development has become a means of

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exploitation of Jharkhand, but also how Jharkhandis have learned to recognize their own identity by a diminution, if not a negation of their exploiters. This phrase also shows, as Gunsi Soren says, how the old triumvirate of Sarkari (government people), Sahukari (moneylenders) and Zamindari (landlords) is currently being reproduced in the guise of industries, mines and development projects." Like the dikus of yesterday, development programs are also looters, trouble makers and cheaters. As Santals of Badabaad told me:

> We say dikus are looters : re re ke menakoa. They are also trouble makers, we call them gigid ko menakoa. We also think that they are deceivers. So we call them chaked ko menakoa (underlined words are in the Santali language).

The skepticism of Jharkhandis about development is well founded. The development infrastructure which dominates rural Jharkhand today came via businessmen, who posed themselves as a superior race and with an obligation to civilize the "junglee" (wild, uncivilized) adivasis. Progress, improvement and development in Jharkhand was constructed by the invaders not only in the dominating discourse of control and rule but more so in the realm of ideology and culture. Development thus implies approximating the values and lifestyles of neighboring Hindus who practice caste hierarchy and seclusion of women. Sinha (1987) has accurately called this approach a "plainsman's burden" or the burden of those who reside on the plains, north and east of Jharkhand.

Like in the arena of regional autonomy, social forestry and irrigation technologies are also an arena of contestation because the specific ecological characteristics of Jharkhand are based on ecological principles different from the capitalist rationality of the Indian state. While the customary use of forest and water in Jharkhand rests on a "moral economy of provision," the environmental policies of the Indian state rest on a "political economy of profit" (Parajuli 1990; Guha and Gadgil, 1989).

This moral economy of provision is an outcome of Jharkhandi people's strategy for survival. Take for example, the role the forest and pasture plays in an agrarian economy. Jharkhandis who are primarily settled agriculturalists, residing on the hilly terrain adapted a way of life different from that of the plains. They irrigated land with ahars, tanks, bundhs and wells which were suitable to the land layout and crop variety. The ahar technology in Kolhan, for example, was geared towards meeting water needs in September when rice crop needed large supply of water. The uncultivable lands were considered communal forest and grazing grounds. Because of their dependence on communal property, they also developed communal bonds among themselves which made them resist the caste system from the plains. They also developed agricultural patterns suited to the undulated

terrain (Sengupta 1988).

But the programs of social forestry and large dam projects neglect their technology and take timber, water and electricity for the benefit of people downstream. Inappropriate development strategies alienated Jharkhandis from their ecological niches and economic livelihood. In turn, Jharkhandis are revitalizing their own ways of maintaining creative interdependence between humans and nature which also includes notion of sacredness towards nature. There should be no mystification about this sacredness. These rural communities are not "deep" ecologist in the pure sense. But they definitely had evolved a creative interdependence between forest, water, agriculture and animal husbandry. Gail Omvedt writes:

> What the sacredness and regenerative qualities attributed to trees, hills and rivers symbolizes is the character of India's traditional rural economy, when production was oriented to need and not profit, and agriculture was built on a balanced relation between crop, land, forest and pasture land. Forests provided not only general ecological balance and subsistence for tribals, but also wood, fruit ,medicines, dyes and many other products that came free or at easy barter rates to the village peasantry. Grazing land nourished the the animals who provided not only milk and meat but also draught power and the most valuable fertilizer for the fields. It is this relationship which Marx once referred to as the 'natural circulation of matter between man and the soil," which has been broken apart with capitalist scientific agricultural development (Omvedt 1987: 35).

Jharkhand is not unique in this. In other parts of India, such as the western Ghats (Gadgil 1985), the Utterakhand (Guha, 1989; Shiva 1988), Gondwan (Grove 1990), also the worst victims in the disruption of the circulation of matter between "man and the soil" are the adivasis who are the forest dwellers, the nomadic communities, who herd sheep, goat and cattle through the grasslands, the artisan groups who derived their raw materials from the forest and mountains, and small farmers who cannot get benefits from irrigation, seeds and fertilizers. Perhaps women have suffered the worst (Agarwal, 1991; Shiva, 1988).

Reinventing "Spaces of Resistance"

Although very high, the frequency of struggles throughout pre-colonial, colonial and post-colonial periods, might be an inadequate indicator of resistance in Jharkhand. As I will argue in the following, Jharkhandis have retained their struggles despite historical setbacks because their modes of struggles are largely beyond the discourse of statist politics and thus carve out "spaces of resistance." Although Jharkhandi movements appear

in the headlines of national newspapers, their depth and roots remain in anonymity. Jharkhandis used what Hobsbawm (1974: 160) calls the "practical rituals of primitive rebels." Scott (1985) among the peasants of South-east Asia, and De Certeau (1984) among popular classes in the streets of Latin America, Abu-Lughod (1986) among the Bedouin women of Egypt, Enslin (1991) among Nepalese women, Bardhan (1990) among the women, outcasts and tribals in India have also brought into focus the prevalence of such forms of "non-rebellion" tactics used by subordinates in various contexts. These tactics are not the privelege of rural people or the primitives either; as De Certeau (1984) has brilliantly shown, they exist at the heart of the contemporary society.

Scott has accurately called these the "constant guerilla tactics of the powerless" -- "low profile techniques such as false compliance, foot-dragging, feigned ignorance,, dissimulation slander, gossip, sabotage and so on" (Scott 1985: xvi). As Mahasweta Devi accurately remarks, subalterns might be "exploited and used, and yet do not accept defeat." What is unique in these forms of resistance is that they "counter and inflect the visible facts of overall domination" and blurr the "simple division between the political and the apolitical" (Foucault 1980 :257 as in Bardhan 1990:37).

My contention is that Jharkhandi tribals, peasants, women and artisans create and recreate their own spaces of resistance through a combination of such techniques. However, as I have argued elsewhere (Parajuli 1990: Chapter 7) Jharkhandis regenerate their history and culture not exactly the way it was but according to the way they can use it to criticize the present. In other words, they rewrite their history in terms of the present. Jharkhandis appropriate history as a powerful tool of resistance and as a metaphor for the construction of Jharkhandi identity. In the words of Walter Benjamin (1969:255):

> To articulate the past historically does not mean to recognize it " the way it really was." It means to seize hold of a memory as it flashes up at a moment of danger. ... In every era the attempt must be made to anew to wrest tradition away from a conformism that is about to overpower it.

That is why existing culturalist interpretation of integrationist anthropologists (Ghurye 1980: Singh 1985) fail to explain why the Jharkhandi movement for regional autonomy is becoming more militant despite their claim that due to sanskriti-

zation [17] a movement to achieve a separate Jharkhand state no longer appealed to Jharkhandis. Some even claimed that Jharkhandi adivasis were merely "backward Hindus" gradually being assimilated into the dominant Hindu culture.

Opposed to integrationist, advocates of "sons of the soil" Weiner 1978; Sachhidananda 1979) argue for greater autonomy for Jharkhand. However, I find both culturalist approaches inadequate to appreciate the cultural framework of ecological/ ethno-regional movements in Jharkhand. While the advocates of "sanskritization" are victims of Hindu hegemony, the advocates of "sons of the soil" thesis are victims of romantic isolationism. Both culturalist models assume that adivasi economy has tenets of relative underdevelopment and absence of specialization or 'cultural lag. Adivasi societies, they argue, are mechanical societies 'because their organization is diffuse and amorphous, non-hierarchical and egalitarian. Jharkhandi adivasis are backward because they are based on lineage and they pursue the "pleasure principle" such as drinking liquor and dancing (Orans 1965; Weiner 1978: 155-6). On the contrary, I argue, Jharkhandis have been undergoing a process of "reverse sanskritization" since the 1960s." Those groups who had abandoned tribalism for Hinduism or Christianity have come back to claim tribal religion and status.[18] They are admitted in the adivasi society through a purification ritual called Suddhikaran.

The fundamental problem with the culturalist model is that it separates culture from politics, relegating culture to rituals and symbols and politics to the practices of elites. Jharkhandis do not separate culture from politics or politics from ecology. For example, it is illuminating to note that Sarna-- a patch of original forest left as an abode for deities during the first

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[17] Sanskritization is a process by which a lower caste is admitted into a higher one by emulating the high caste's eating, drinking, and smoking habits. Some adivasis of Jharkhand had opted for sanskritization by adhering to high caste Hindu deities, rituals and names (Saha, 1987; Singh, 1985). Data of conversion to Hinduism or Christianity shows that they were happening in the periods immediately after failures of tribal movements. Such as, the Bhagirath movement fostered after the defeat of Santal Hul (Gautam 1977).

[18] For example, Mahatos who had applied not to be included as tribes in 1930s have now applied to be scheduled as tribes. Similarly, Bhumij, one section of Mundas have also begun to claim Munda tribal status (Munda 1986; Singh 1985).

clearing of forest for settlement-- is becoming a unifying element between various groups (including non-tribals) in Jharkhand not only as a religious but also as political and cultural symbol (Hembram 1983; Munda 1986). In the process of protecting Sarna from the onslaught of development projects and timber industries, Jharkhandis have elevated it as a symbol representing their affinity with nature. Mangal Singh Lamaye, a Ho adivasi and leader of Jharkhand Mukti Andolan, told this author:

> The green forest and sarna are our testimony of ecological consciousness. Our religion is to show reverence towards nature. Our religion is itself ecological. When we talk about Sarna, it reminds of the love of green foliage (popularly known as hariar ratang or sakam). That is why Jharkhandis also relate to the green flag as representative of their identity. A green color brings home the commonality of ancestry and how the ancestors kept the cluster of original trees as a testimony of history.

The memory of historical struggles/heroes and the folklore around these movemements of renewal, abound throughout Jharkhand. The depth of this memory represent what Harvey(1989) calls "imagined spaces." For Jharkhandis, heroes such as Birsa Munda and Sidu, Kanu had become like deities at the level of Bonga.[19] the superior sun god. The songs invoke how the struggle of today was linked to those of yesterday. The Birsa Ulgulan (movement) of 1898 had revived the songs of the Kol rebellion of 1832. The Naxalite movement of 1968, which was widespread in Santal Pragannas and Chotanagpur (see Duyker 1987) brought back the haunting memory of the Santal Hul of 1855. By reciting and singing these songs in festivals and gatherings, Jharkhandis have kept their "imagined spaces" alive. Any attempt to restore alienated land or to protect forest or to stop construction of dams was seen by Jharkhandis as a continuation of the unfulfilled promise of Birsa Munda and Sidu, Kanu. A following contemporary

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[19] The term Bongaism is the belief in a supernatural and impersonal power existing as a quality or attribute of objects, both animate and inanimate. The Supreme being of the Santals is for example, Thakur. Thakur is a protector and giver of life. He is identified with Sing Bonga (son god). On earth, Marang Buru (the great mountain) is his assistant in charge of forest, crops, rain, and all the trees and animals that are found in the santal ecological surroundings. His consort is Jaher Era, in charge of the village shrine (Jaher Than) and protector of villages; she gives them welfare, health, successful marriage, fertility, etc. She is considered to be the mother earth goddess (Gautam, 1977: 374).

song keeps the memory of the Santal Hul alive :

> We will ever weep
> for the souls haunting
> in the vast stretch of saal (Shorea Robusta) forest
> the unrewarded boys, Sidu, Kanu, Chand, Bhairav
> Who are still in our minds (Archer 1945).

Looking deeply at the corners in which the spaces of resistance are located, I find that the modes of struggles in Jharkhand also signify consciousness which is as "negative in orientation as it is political in content" (Guha 1983:146). For example, in the Santal Hul of 1855-57, Santals hung oxen skin in each household played flutes beat drums (Datta 1955; Rottger--Hagen 1982). Oxen skin and flute not only represent Santal unity but also express opposition to dominant Hindu culture in which cow slaughter is prohibited. Flutes asserted the pleasurable artistry of Santals life as opposed to the austerity of Hindu life. Similarly, I saw Jharkhandi adivasis using bows and arrows and distributing Dhrawak made of Saal branches to communicate about meetings and processions either to harvest paddy or to destroy construction machinery in the sites of big dams. They celebrate their victory by playing flutes, beating drums and drinking handia (homemade liquor) as if to reassert the pleasure principles so much downgraded by the high-caste Hindus (Orans 1965).

Small wonder that Jharkhandis have insisted on the demand that they be allowed to attend meetings and processions with their traditional bows and arrows and other weapons despite being banned by both the state governments of Bihar and West Bengal. Bows and arrows in Jharkhand, aside from having secular functions, can also have a sacred role. When a bow is used for a ritual sacrifice purpose it is considered sacred and acquires supernatural power from the Bongas (Duyker 1987).

Jharkhandi ways of punishing landlords or moneylenders also reflect their sense of justice and injustice. In one available account, the Santals chopped off the moneylenders' limbs bit by bit with a tangi (axe) shouting, "

> With these fingers you counted your interest, with this hand, you snatched away food from the poor (Datta 1955: 74).

As Davis (1973: 82-3) has argued in the context of agrarian movements in Europe, Jharkhandi s oppressors were not only to be killed but to be weakened and humiliated further, stripped of all recognition. Such kinds of punishment coincide with the Santal

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rite of Bitlaha [20] in which the offender's house is defiled with urination and excrement so that the ostracized cannot return in the community. Similarly, the mutilation and desecration of corpses also destroys the victims capacity to rise again.

Moral economy of justice or injustice, provision or scarcity also informs their ecological behavior. For example, they regard any laws restricting their access to forest as "diku raj." Indian peasants also identified the colonial rule as a Bania Raj (the rule of traders) or the Rakchhavashi Raj (rule of the demons).

The modes of forest struggles in Jharkhand can not thus be enveloped within the account of forest Satyagrahas (disobedience movements) which were primarily led by the Indian Congress Party. The autonomous movements of adivasis, artisans and peasants to protect forest were informed by a different content and spirit. For example, although inspired by the Indian Congress during the non-cooperation movement (1921-22), Santals of Midnapore used their own style of protest against the Midnapore Zamindari Company (MZC). They looted Haat, (weekly market) burned foreign cloths and attempted to restrict the export of paddy. In Silda, Santals began to plunder jungle leased to timber merchants and beat up a police party trying to confiscate the newly cut wood (Dasgupta 1985). Sarkar (1984) notes that Santals violated forest laws in an area of 200 square miles extending between Jhargram in Midanapur and Ghatshila in Singhabhum district in April 1923. Forest struggles were also tied to the looting of fish from ponds. Adivasis believed that jungles were free and bandhs (ponds) open to the public.

Santal and Ho peasants in Kolhan also directed their protest selectively against commercially useful but locally useless trees such as Teak, Acacia and Eucalyptus during the Saal vs. Sagwan struggle. They pulled out teak saplings and replanted with those of Saal. Similar selectively moral oppositions to alien forestry polices are found elsewhere in India. For example,in the World Bank sponsored social forestry programs in Baster district of Madhya Pradesh, Anderson and Huber (1988) found that the local Muria tribals pulled out saplings of teak and acacia trees. Similarly, Guha (1989) found in Garhwal that in the forest fire of 1921 peasants of Kumaun, Garhwal had destroyed pine trees but saved the broad-leaved species since they had greater value to local agriculture. There are also several movements that are in direct violation of prohibitive rules of parks and santuaries. For example, sixteen peasants

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20 An extreme form of social outcasting, decided by the Santal Panchayat for breach of social code especially regarding sexual relations and marriage.

were killed near the Bharatpur Wildlife santuary in 1984 as they led their cattle into it (Grove 1990). The Baiga tribesmen of Madhaya Pradesh have also resisted the restriction on pasture and forest use imposed by the national parks and tiger reserves.

In a similar vein, in his book, Whigs and Hunter (1976:245) E. P Thompson asserts that the forest conflict in rural England was, in origin "a conflict between users and exploiters." The Black Act of 1723 is his case in point. This act had curtailed historical uses made by "the public" of the forests in England. Thompson shows how the act was used to intimidate and subjugate violators, and how the severity of the act provoked groups of poor violators to challenge it throughout the eighteenth century. Confrontations over deer hunting were particularly violent. The bone of contention was that as local peasants rights to use forest were curtailed, the same forest was used for the benefit of privileged few.

Conclusion: Theorizing the "Commoner's Tragedy"

Contemporary ecological movements in Jharkhand express concerns relating to wood supply, access to grazing, minor forest produce, fertilizer, fodder, and firewood they harvest from the nearby forests and the water they collect from rivers. One should never forget, however, that the grievances are both environmental and social in nature. They are social in the sense that not only with the state policies or state sponsored development projects the poorer rural peasants have to contest with the local powers-that-be for access to commons.

Jharkhand s case, thus dispels the myth about the so called "tragedy of the commons" which informs in fact most underlying assumptions of the dominant discourses on ecology, ethnicity, development and the nation state. Instead, to give justice to Jharkhandi ecological aspirations, we need to develop a perspective which attends to the "commoner's tragedy." A perspective, which can show that Jharkhandis not only are struggling for local community s control over common resources, but that even the possibility of collective action to regenerate space is largely derived from the residues of their "cultural-political commons." "Resistance for space" comprises a significant portion of the "cultural-political commons."

The above analysis shows that ecology is primarily a site of contestation between the logic of global capital to integrate non-capitalist economies into its own orbit and the yearning of marginalized peoples for a space-- cultural, political, historical. The tension intensifies in areas such as Jharkhand where the capitalist economy becomes so parasitic to the non-capitalist economy that it neither pays the full cost of reproduction of labor power, nor for the reproduction of natural resources.

This in-built exploitative dependence of capitalist economy over the non-capitalist economies can not be overcome either by state management of resources (Leviathan) or by free market corporation (privatization) as found in the "tragedy of the commons" literature.

If the state is not likely to be able to play a constructive role, who then can be trusted for the sustainable management of resources in Jharkhand? Let us take forestry management as an example. In essence, both the Indian state and the Jharkhandi tribals seem to be accusing the other of forest mismanagement. The basic question is: who destroys forest? If the accusation of the Indian state is true, should we give Jharkhandi peasants the responsibility of protecting the forest ? If the accounts of Jharkhandi peasants is true, can we trust the state to save forest?

I deduce on the basis of my interviews with various groups involved in forest struggles in Jharkhand that the fundamental problem in Jharkhand is neither the state nor the peasants but the commercialization of forest produce. Once forests are commercialized, both the state and peasants become involved in destroying forest for profits beyond domestic needs. Once forest is considered as a resources to be sold in market, the logic of ecological prudence does not hold. One of the fundamental rules of ecological prudence is that there should not be any competing rival when a particular community is exercising restraint in the harvesting. There is no such certainty in Jharkhand. As Sadhu Purti, one of the Manki Mundas of Kolhan, told me in an interview:

> If the government wants to reforest Saranda [2] forest, it should declare a moratorium on all felling of trees for the coming ten years either by industries, mines or forest department. A decade would allow enough time to heal the wounds these criminals have inflicted on nature.

Runge (1986) has called it the "assurance" problem. Gadgil (1985) has argued that such "assurance" is a necessary condition for the continuation of "ecological prudence" of a particular community. The crucial challenge is: How can an atmosphere of distrust between the state and the people and among people themselves regarding the use of resources be avoided?

A considerable part of deforestation is also caused by peasants who encroach on forests for agricultural purposes. Since forest goods can now be sold on the market, many Jharkhand-is have abandoned "constructive" dependence and opted for

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[2] large patch of original saal forest in the Kolhan region of Singhbhum district.

a "destructive" dependence on forest. This process can be understood as part of the wider economic transformation of Jharkhand. Ever since the economic growth model has defined forest as a profitable resource, Jharkhand's long cherished ecological prudence has been threatened. The forest based industries favored world views which justified quick profit and species which were fast growing and useful as raw materials for paper, pulp and furniture companies. Jharkhandis have faced major disjunctures in their lives in the transition from an informal to a formal, from a communal to an individualistic economy.

However, there is hope. The most encouraging aspect of the forest struggles in Jharkhand is that they have begun to regenerate and at the same time critique Jharkhandi knowledge regarding forest. Activists involved in forest struggles argue that a sustainable use of forest can be guaranteed only by giving responsibility to local peasant communities who have a stake in the protection of forest. This can be done by reactivating traditional village leadership. In Kolhan, the revival of traditional Munda Manki system in regulating forest is still relevant, because theoretically, Khuntakatti forests are still owned by the village. The Chotanagpur Tenancy Act ,1908 which was enacted just after the Birsa Movement recognized not only the right to land but also the community rights over forests.

Local Kisan Majdoor Sammittees in Madhupur, have already shown tangible results. They have not only stopped the felling of trees but have also begun planting fodder and fruit trees in wastelands of the community. In their view, the importance of forest lies in its bio-mass and its contribution to local agrarian economies including water. They complained that the major source of forest depletion was from outside and had to be banned. At the same time, they agreed that as a working principle, minimum rules for local consumption of forest should be devised and enforced by each community. Such limits were imposed and implemented in the Chechali forest.

People of both Kolhan and Madhupur argue that the responsibility of management of forest should, however, be collective. Moreover, species should be selected by the local communities. They advocated programs which not only gave greater autonomy to local communities in forest management, but also broaden the concept of forest to include wastelands and croplands

Finally, let me touch into a pertinent issue, Herring (1990) has raised that local democracy might expedite the exploitation of resources. This issue emanates, I believe, from the premise that in electoral democracy elites are subject to popular manipulation. May I suggest an alternative notion of democracy as conceived at the grassroots. That is democracy as a "participatory form of social arrangement" through which the

hitherto excluded are given larger say in the management of resources. Democracy means that the direct users of natural resources should be given the primary responsibility for managing their environment.

I do not however, mean to imply that "user-groups" are necessarily more egalitarian, less exploitative or spatially enlightened. Whatever their own limitations, such user-groups do count and contain possibilities for a "cultural politics of ecology." First, they affirm the simple fact that those who have the highest stake in the environment are most likely to devise sustainable ways of harvesting it. Second, enlargement of such subaltern counter-spaces widen the range of possible discoursive contestations and thus create conditions for recognizing their ecological knowledge.

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SUSTAINABLE FOREST MANAGEMENT

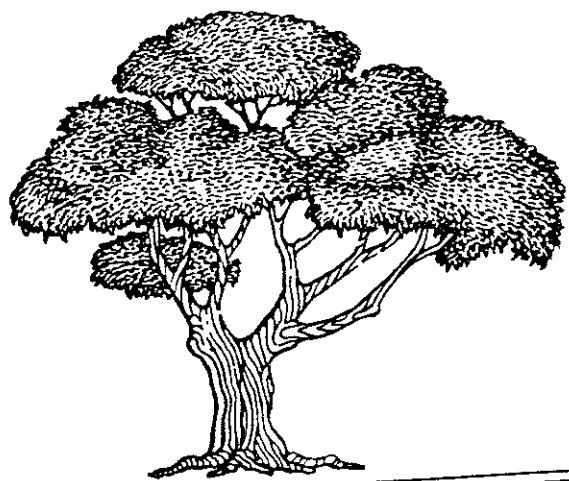
WORKING PAPER SERIES

FIBER GRASS FROM FOREST LAND
A CASE FROM NORTH INDIA

by

Mark Poffenberger and Madhu Sarin

Working Paper No. 10



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FIBER GRASS FROM FOREST LAND – A CASE FROM NORTH INDIA

Mark Poffenberger and Madhu Sarin

Abstract

Fiber grasses are important raw materials for India's rural rope making industries and commercial paper mills. Bhabbar or sabai grass (Eulaliopsis Binata), grows in abundance on forest lands in eastern India and in the Shivalik range stretching from Uttar Pradesh to the Pakistan border, at the base of the Himalayas. This paper explores how acacia forests and grasslands are managed by the Haryana Forest Department and lease harvesting rights are allocated to contractors and a paper mill. It also chronicles the experiences of the Hill Resource Management Societies (HRMS) in protecting and utilizing the grass lease lands under a Forest Department (HFD) program to transfer non-wood forest product harvesting rights to communities to improve forest management.

The information presented is drawn from field studies and process monitoring reports compiled under the joint forest management support program over the past three years. The authors have participated in numerous discussions with community management groups (HRMS), working group meetings with senior HFD officials, field staff training programs, and with paper mill representatives. While the Department's successes are admirable and their failures understandable, the significance of the HFD program is in the learning that has emerged. The HFD's experience working with communities to manage reserve forest lands may provide lessons which can help develop new approaches to managing and restoring India's valuable forests and grasslands.

Introduction

Throughout the semi-arid and arid regions of India land is often too degraded and has too little top soil or rainfall to support extensive forests. Tree growth is generally slow, often averaging less than one ton annually, yet a wide variety of grasses grow in abundance. While forest departments have tended to rely on tree planting in these areas to control soil erosion and enhance productivity,[1] fodder and grass production frequently offer better opportunities for soil and water conservation, income generation and job creation.

In India it is currently estimated that 2.2 million tons of grasses are collected annually. Better management of grassland areas could result in a four fold increase in productivity.[2] National estimates by the Committee on Fodder and Grasses estimate "that in 1985 only 57% of dry fodder and 27% of green fodder requirements were being met".[3] The increased production of fodder grasses from forest lands consequently is much needed and has considerable potential.

India's fiber grasses, particularly Eulaliopsis Binata (bhabbar or sabai), are an important raw material for paper making. Between 1951 and 1981 paper and paperboard production in India increased over 900%, yet India still relies on paper imports to meet its paper needs.[4] The demand for paper by the year 2000 is estimated to reach 3.25 to 4.4 million tons against the 1985 output of 1.5 million tons.[5] To meet these demands in less than one decade, the production of raw paper pulp materials will need to be increased to over 8 million dry tons annually.[6] To promote the industry's growth in India after independence forest departments leased out large tracts of public land to paper industries for up to 40 years at nominal rates. Concern over the unsustainable exploitation of bamboo and fiber grasses, however has forced forest departments to provide shorter leases, raise lease rates, and monitor exploitation more strictly.

The over exploitation of bamboo as raw material by the late 1980's is forcing many paper mills to rely more heavily on eucalyptus and other raw materials. Already mills are using increasing quantities of eucalyptus. However, despite paper mill preference for fiber grass as a raw material, use has fallen over the past forty years, perhaps due to poor grassland management. Bhabbar consumption for paper decreased from 15.6 per cent of all raw materials in 1952 to 5.8 percent in 1969-70 with total consumption declining from 70,000 tons per year in the early 1970's to around 40,000 tons in the early 1980s.[7] Still, the total potential for an estimated 20 native fiber grass varieties in India as raw materials for paper production is estimated at 400,000 tons, with employment opportunities generated capable of yielding 3 to 4 million person days of work annually for harvesting.[8]

In addition to paper production, fiber grasses are the primary source of raw materials for local rope making industries. Fiber grass rope (baan) is primarily used in stringing traditional beds (charpois) and for tying agricultural produce. In the North Indian states of Bihar, Uttar Pradesh, Madhya Pradesh, Haryana, Punjab, Rajasthan, and Gujarat crude estimates indicate that there may be 200 million traditional beds of this type. Every two to three years these beds are restrung, requiring four kgs. of fiber rope. This creates an annual demand for approximately 250,000 to 400,000 metric tons of rope. Women producing bhabbar rope by hand can make about 4 kgs. each day, consequently the rope making industry for bed rope alone may generate up to 100 million work days annually representing Rs. 1 to 1.5 billion in income for village producers. In addition, perhaps 100,000 metric tons of fiber grass rope are produced for bundling and tying agricultural produce and livestock. While traditional fiber grass rope is being partially replaced by nylon, it remains a major cottage industry in North India. Unfortunately there has been little study of the bhabbar grass industry in India.

Fiber Grass Lease Management in the Haryana Shivaliks

In North India the heart of the fiber production region is the Shivalik hill belt stretching from the Nepal Border to the Pakistan border, along the base of the Himalayas. Most of the hills fall under state forest department control. While the Shivalik's were well forested at one time, extensive logging from the later half of the 19th century till the 1960's allowed grasses to come up in abundance. Throughout the region many communities are involved in bhabbar harvesting and rope production. In Saharanpur District alone, in northwestern Uttar Pradesh, it is estimated that 200,000 people derive a major part of their livelihood from grass harvesting and processing.

Even in neighboring Ambala District in Haryana, bhabbar is an important commodity. Of the 68,000 ha. of forest lands in Haryana's Shivalik hills, approximately 20,000 ha. are leased out for bhabbar cutting by the Forest Department. Since the leasing system was established 4 to 5 decades ago, long leases were granted to a paper mill at nominal prices, which hired laborers to cut the grass. Due to the discrepancy between the forest department's lease rate and the open market value of bhabbar, in 1980, when the mill's lease expired, the Haryana Forest Department (HFD) initiated an annual open auction for grass cutting leases. Since the auction system was initiated a decade ago the lease prices rose dramatically, averaging Rs. 180 to Rs. 289 per ton. This however, is still much below the open market value of Rs 1000 to 1500 per ton. There has been growing concern over the sale of forest resources to industries at concessional rates. Some people argued that these large lease holders had neither the economic need to receive government subsidies, nor the commitment to improve management of the resource. It was suggested that forest communities could play a effective role in improving forest lands by controlling grazing and cutting. One way to attract their interest would be to give them priority access to the leases in exchange for improved protection and management.

Over the past decade the Haryana Forest Department has attempted to overcome legal, procedural, organizational barriers and the vested interests of powerful economic groups to devise participatory management systems for reserve forest lands in the Shivalik Hills. The Department has struggled to identify appropriate technologies, open communication channels with hill communities, and involve them in a collaborative effort to regenerate the highly eroded watersheds of the Shivaliks, providing fiber grass leasing opportunities as an incentive.

Community Bhabbar Lease Program Strategy

The HFD's program to give local communities priority access to bhabbar leases originated from the dramatic regeneration visible in the watersheds behind Sukhomajri and Nada after the villagers started practicing social fencing by controlling grazing and cutting. Initially, the HFD asked villagers to stop grazing of their cattle and goats in exchange for getting irrigation water from the small earthen dams built by the HFD. At that time it was argued that the increased bhabbar yields generated by improved protection should be given to the community as its rightful share for improved forest management. This in turn would give them a greater incentive to continue to improve the management and productivity of the local forest.

Under community protection and through enrichment planting the bhabbar grass productivity in the watershed above the pilot project community of Nada was estimated to have increased from 36 kgs. per hectare in 1981 to over 5000 kgs per hectare in 1986. In the nearby village of Sukhomajri, similar increases were observed. Another study indicated that fodder grass production also rose from 35 kgs per hectare to 600 kgs annually. The regeneration of natural grasses and other vegetation also resulted in a significant decrease in erosion levels. One early study indicates that soil erosion from the effected catchment areas decreased markedly under protection from 900 to 30 metric tons of soil loss per hectare per year between 1978 and 1982.[9]

To gain access to the grass, the Sukhomajri Hill Resource Management Society (HRMS) requested the Forest Department to sell the grass leases directly to the HRMS, rather than to middle-men, who had sold cutting rights to villagers Providing leases directly to the local societies was a significant step in transferring some formal management responsibilities to the community in overseeing the use of neighboring government forest lands The combination of lowered lease costs through the elimination of the middle men, plus the increased grass productivity resulting from closure to grazing animals, has generated an estimated Rs 1000 per year in additional income per village family in Sukhomajri[10] In 1986 the Sukhomajri-Dhamala Hill Resource Management Society paid the Forest Department Rs 22,000 for the lease, however by 1987 the HRMS was harvesting 150 metric tons from their lease area valued at Rs 120,000 (approximately $10,000 at the exchange rate at the time)[11]

When the Haryana Government first considered selling grass leases to HRMS in 1986, the HFD decided that HRMS would receive them at the average price reached at by them in the open market over the preceding 3 years The village of Sukhomajri which had already formed an HRMS received the first lease priced on this basis The neighboring communities of Lohgarh and Jattan Majri subsequently purchased leases on the same basis, as did Govindpur Masoompur and Raina villages to the east, (see Map 1) The HFD also decided that the prices of fodder and bhabbar grass leases would be kept stable These leases continued to be sold to these HRMS at this rate until 1988, when the Divisional Forest Officer of the area issued orders to increase previous rates 10% each year

Price setting for the lease agreement with the contractors and the mill, however, is calculated differently than of those sold to the HRMSs The mill is committed to pay a gate price based on each metric ton of bhabbar actually harvested The price is to remain stable during the first two years followed by an annual price increase of 7.5% during the next three years Further, the mill has no obligation or incentive to assist the HFD in improving forest management or increasing production If the yields in a particular year are lower than those of the previous year, at best the HFD can penalise the mill for leaving some of the bhabbar unharvested

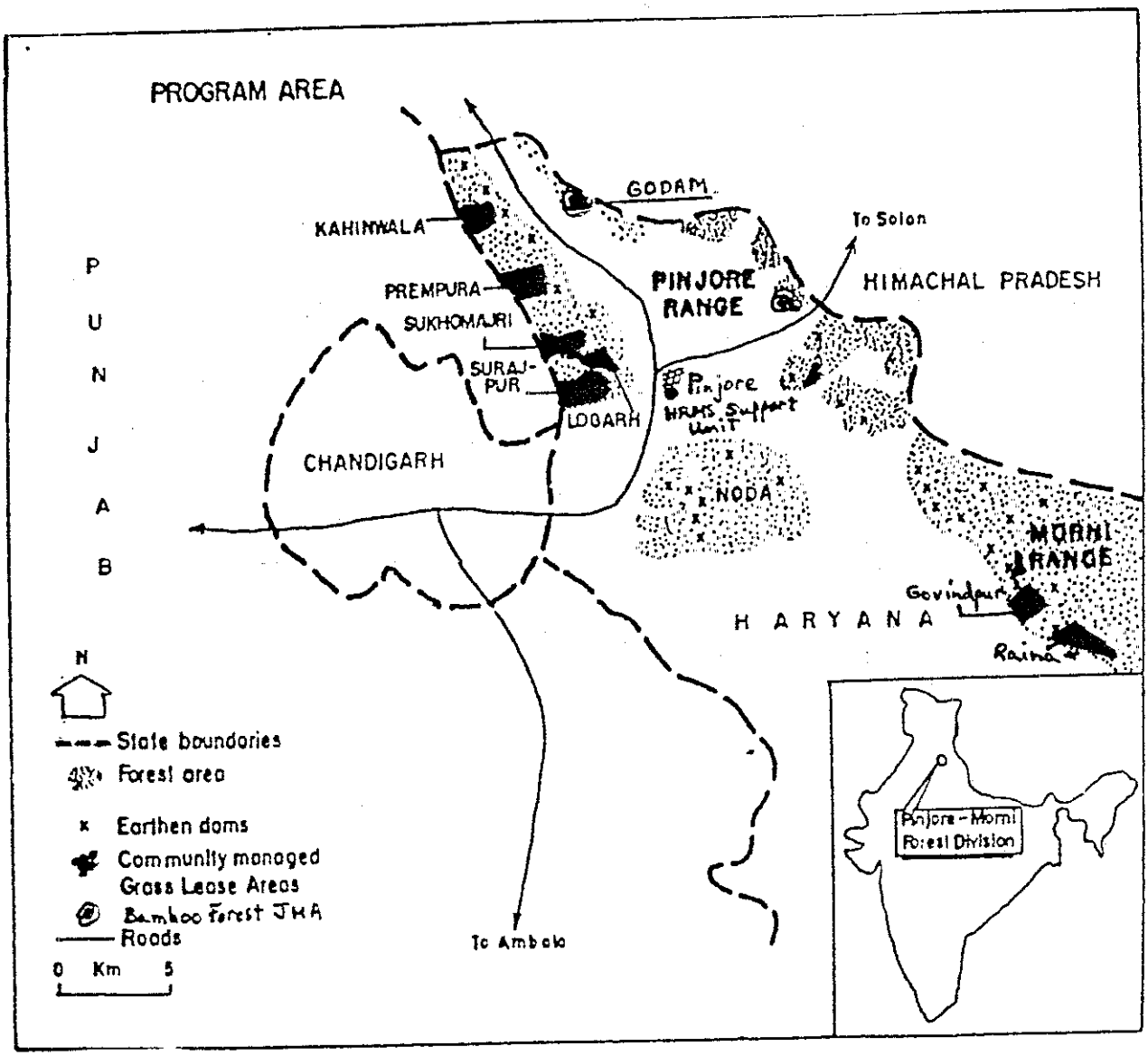
The HRMSs, on the other hand is usually asked to pay the entire amount for an area at the signing of the lease with annual price increases of ten per cent, irrespective of actual production No reliable system for monitoring annual yields exists yet and there is no mechanism for reducing the HRMS lease prices if yields fall due to natural or human factors During the last 2 years, the HFD has attempted to make leasing terms for HRMS, more rational, by developing its joint management policy framework which has already been approved by the government To draft the rules for the new policy several meetings with members of HRMSs have been held These, together with the reactions of the mill, contractors and the Haryana Forest Department are examined below:

Reactions of the Hill Resource Management Societies (HRMS)

The opportunity to gain access to grass leases in forest areas generated favorable reactions in a number of Shivalik hill communities On their own initiative, leaders of several villages approached the HFD requesting participation in the program Priority access to bhabbar leases for forest areas adjoining their villages has been a major attraction to rope making communities who need a nearby source of low cost fiber grass As an increasing number of HRMSs purchased bhabbar leases, however, they encountered difficulties with pricing policies and payment systems

Surajpur village is a case of a recent community grass lease purchase This multi-caste community of nearly 1000 households is comprised of some agriculturalists, but mostly of families employed in a nearby cement factory In 1989, about 40 members of the community took the initiative to form and register a society and then approached the HFD with a request to purchase the fodder grass lease for the two forest

MAP 1: HRMS Grass Lease Areas in 1991
in the Morni Pinjore Division, Haryana



compartments in their vicinity. They had learned about the community lease opportunity from villagers in Sukhomajri. They even paid a lawyer Rs 700/- to assist in registering their society. Their major motivation for taking the grass lease was to curb exploitation of poorer members of the community by a local contractor. He sold fodder cutting rights (dati) to households at the inflated rate of Rs.650 to Rs.1300 per season. The society reduced the dati rate to Rs.400 in the first year and to Rs.200 in the second year and also started giving free datis to widows and poorer households.

In 1990, despite the Paper Mill's objection, the HFD sold the Surajpur Society both the fodder and bhabbar grass lease on the condition that they would not sub-contract the fiber grass to a contractor but manage the harvesting and disposal themselves. However, the HFD found out that the HRMS had sub-contracted the lease. During a meeting with the HRMS to discuss the matter, after initial hesitation Surajpur leaders pointed out that they were compelled to sub-contract because of their inability to raise the entire Rs 68,000 lease fee for advance payment. The villagers reported that they had pleaded with HFD's Range Officer to permit them to pay the lease money in installments as allowed to contractors, but their request was refused. They pointed out that similar problems were being faced by other neighbouring HRMSs and many had also been forced to re-sell their leases to private contractors. Surajpur's leaders suggested that a meeting of the representatives of other HRMSs should be called to discuss this and other problems. The villagers were confident that if the HFD could assist them in resolving payment and pricing problems many HRMSs could manage the harvesting and marketing themselves. They promised to assist other HRMSs in doing so provided the HFD agreed to accept lease payments in three installments.

Interestingly, when Surajpur community members were asked why the HRMS had desired to purchase the bhabbar lease, when few of the community's households need bhabbar for rope making, they said they wanted to use the income from the harvesting and sale of bhabbar to lower the dati harvesting rate for fodder grass. In Surajpur-Rajjipur and neighboring villages it is the poorest households that are most dependent on collecting fodder grass from the forests and many of them find it difficult to pay harvesting fees (dati).

The HFD team accepted the Surajpur leaders' offer to organise and host a meeting of representatives of other HRMSs. The agenda for the meeting was discussed with them in advance and communicated to all the invited HRMSs by Surajpur's leaders. An extremely successful meeting was held in Pinjore on March 10, 1991 in which 17 HRMS participated. The issues and problems raised during the meeting are discussed later in the paper.

A second case of a community grass lease holder is that of Kahinwala. Once migratory pastoralists, the Banjara Sikh community of Kahinwala was established in the middle of the Shivalik hills four generations ago. Rope making represents the main source of income generation for most of the community's households. The community has 140 hectares of common property land (Shamlat). Some of its fiber grass needs for baan (rope) making are met from this. To meet their remaining raw material requirements, villagers often bought bhabbar grass from local contractors at inflated prices. Alternatively, they sometimes bid for the bhabbar lease in open auction. When the HFD staff contacted the village to determine their interest in forming a management society and taking the lease, the community showed considerable interest. The HFD indicated that in return for the lease the community would need to stop grazing and tree cutting on the reserve forest. The community quickly drafted a handwritten resolution signed by representatives of all village households offering to keep livestock out of the compartment in exchange for the bhabbar lease on concessional terms. All forty-six households in the village reduced their open grazing animals from 135 goats and 65 cattle in late 1989 to 55 goats and 26 cattle in early 1991. After reducing their free grazing population by 60%, they used the money to increase their commercial dairying herd of stall-fed water buffaloes from 39 to 91 head over the same period.

In 1989, the Kahinwala HRMS purchased the bhabbar lease to compartment C8 for Rs. 44,550 (approximately US$ 2500) (see Map 2). The rate was fixed by adding a 10% increase to the previous years

winning auction bid. In 1990, the price was raised another 10% to Rs 49,000. In addition, the HRMS had to deposit Rs 7225 as income tax payable on the lease, which was later refunded after a tax exemption was granted. The total sum of Rs 56,225 was raised by 41 members of the community, each paying Rs 1400 for bhabbar cutting rights (dati). Four families did not participate because they were not involved in rope making. Each participating family harvested approximately 3 metric tons in 1989, but only 2.7 tons in 1990 due to unseasonably abundant rainfall and the spread of lantana cemara in the leasehold.

While the Kahinwala HRMS members profited in both years from their lease purchase, their leaders were not entirely satisfied with the HFD's behavior. They felt that they had fulfilled the terms of their joint management agreement with the HFD by halting grazing and cutting in their lease area, but objected to the HFD's 10 per cent annual increase in lease rates. Since under the villagers understood that the lease rate was to be set at the average price over the past three years leading up to the HRMS purchase with increases limited to 7.5% annually, the HRMS felt the HFD was defaulting on the agreement. They also felt downward price adjustments should be made if productivity fell due to natural causes. A new HFD resolution is being drafted to shift the rate fixing to one based on actual production levels and allowing installment payments by the HRMS.

Similar experiences of village mobilization for lease acquisition have occurred in 6 to 8 other communities in the Haryana Forest Department's Ambala Division. In the Muslim Gujjar community of Raina, families who are traditional grazers and had an average of 100 goats per family have similarly sold all their goats in exchange for the bhabbar lease and irrigation water from a dam. During 1990-91, residents of several other villages falling in Raipur Rani and Naraingarh Ranges expressed interest in taking bhabbar leases. Regular monitoring, however, has revealed that a similar range of problems with price setting and payment systems need to be addressed to facilitate community acquisition and management of forest lands and grass leases.

Reactions of the Paper Mill

Ballarpur Industry is located in Haryana and is one of the oldest and largest paper mills in North India. By 1992, the mill will require approximately 400,000 metric tons of raw pulp material each year. Approximately 50% of its requirement is for short fiber pulp, increasingly drawn from eucalyptus trees; the remaining raw materials must be long fiber, for which bhabbar, bamboo, rags, and other grasses are utilized. The majority of the mill's needs for bhabbar are met from the Shivalik hill regions of Nepal, U.P., and the Punjab, due to the limited supplies available from Ballarpur's home state of Haryana. Currently the mill purchases approximately 4500 tons of bhabbar each year from Haryana, two-thirds of which comes from the Shivalik hills.

Between 1960 and 1980, the paper mill had a long term bhabbar grass lease for forest areas in the Shivalik Hills of Haryana. Like many Indian State Forest Departments, during that period extraction leases were given virtually without cost. In the late 1970's the Ballarpur mill was paying only Rs 6.70 per metric ton for bhabbar grass. In 1980, when the mill's long term lease expired, senior forest officers decided to establish an open bidding system for bhabbar compartment cutting rights. In the first year's bidding, the bhabbar rate rose to Rs 180 per metric ton. Throughout the 1980's, the mill continued to control most of Haryana's bhabbar lease compartments either by bidding for individual compartments in open auctions or by purchasing harvesting rights from private contractors. In 1989, the mill signed a new 5 year bhabbar lease with the HFD.

From 1986 to 1989, 7 HRMSs purchased leases in Pinjore and Raipur Rani Ranges. Initially, there was little mill reaction to the entry of community management groups, however, by 1990 over 2100 hectares of forest land or 56% of the total bhabbar lease area in the Pinjore Range was under HRMS management.

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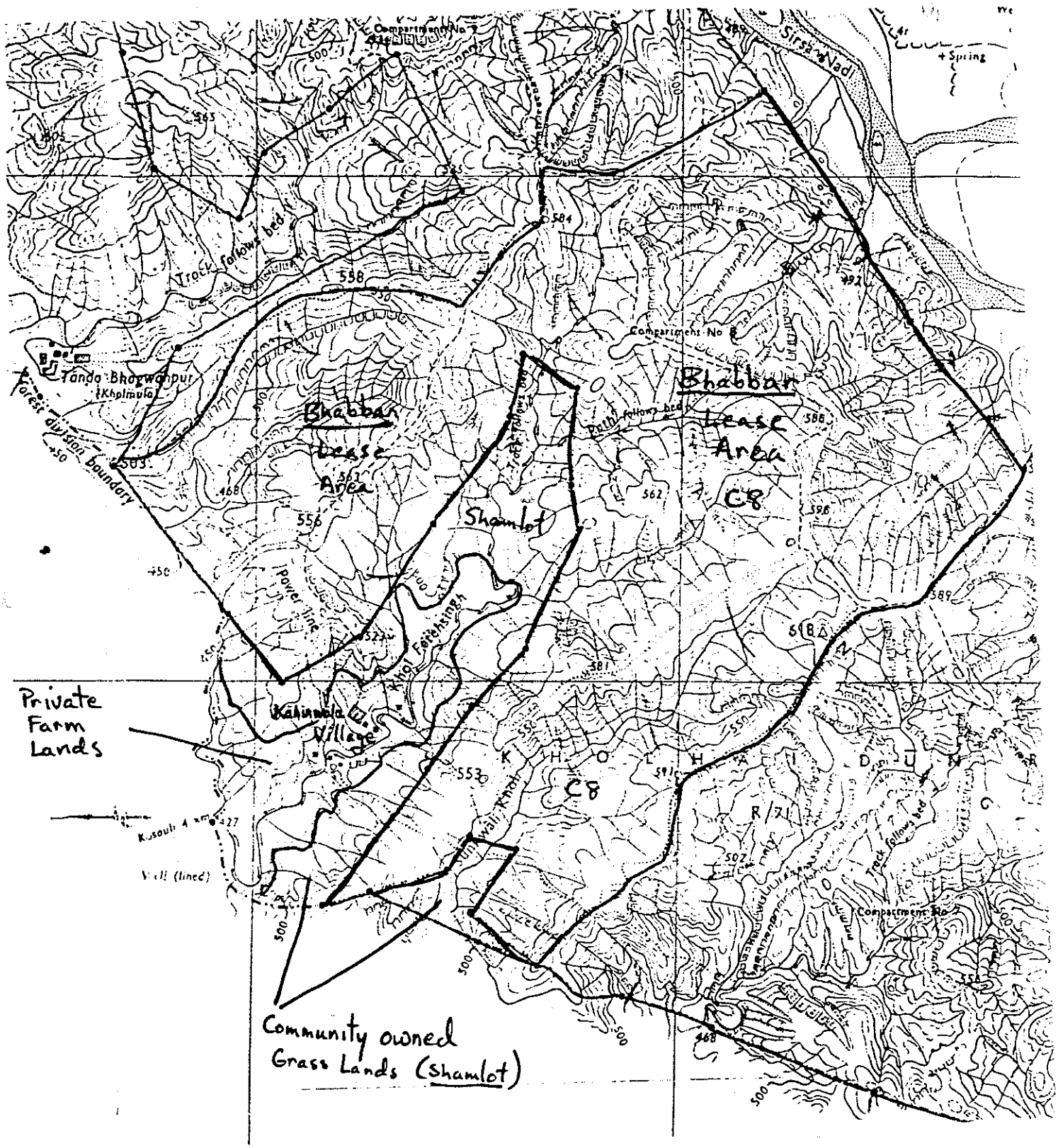
Map 2: Kahinwala Village and the HRMS Grass Lease Area



When three new HRMS in another forest range had requested leases for the 1990-91 season, the mill's raw material procurement officer complained to the Chief of the HFD. While the lease agreement had an escape clause permitting the HFD to withdraw any area covered by the mill's agreement from its purview in 'public interest,' the mill argued:

i) that with additional areas being given to HRMSs, the mills manpower planning for bhabbar harvesting and collection would be upset, threatening unemployment for those employed by the mill

ii) that HRMSs would sell the bhabbar from their joint management areas to contractors from the neighboring state of Uttar Pradesh, thereby depriving Haryana of an important raw material.

iii) that the mill's tax payments made an important contribution to the state's economy and exchequer, and that consequently it deserved priority access to the bhabbar production of the state

The conflict of interests between the mill and the HRMSs also became evident when an analysis of HFD records revealed that mill had purchased virtually all of the newly offered 1990-91 fodder grass lease rights in the Raipur Rani range of Morni Division. When a mill official was asked what interest the mill had in fodder grasses, his reply was succinct. While the mill could not use fodder grass as raw material for paper making, the mill's managers felt the inexpensive fodder leases were a small price to pay for depriving villagers access to the area for fodder cutting and facilitating protection of the bhabbar grass.

These issues were raised in a meeting of the HFD's Joint Forest Management Working Group which monitors the development of the program with a representative of the mill. All the senior HFD officials present at the meeting unanimously objected to the mill purchasing fodder grass leases to facilitate protection of bhabbar. HFD foresters agreed that the mill could not deprive poor villagers access to an essential subsistence need (fodder) in furtherance of its own interests. The HFD tentatively decided that from 1991 the mill would not be permitted to purchase fodder grass leases.

An effort was also made to encourage the mill to develop a bhabbar purchasing agreement with all existing and future HRMSs, rather than managing protection and harvesting directly. Such an arrangement could resolve the HFD's problem in deciding between two claimants to bhabbar leases, while providing the mill with a more reliable source of raw materials. The HFD would get the benefit of social fencing by the villagers, the mill could be ensured access to the raw material it needs and the villages could benefit from an increase in bhabbar production resulting from their protection activities. However, the above arrangement can work only if the mill is willing to pay the HRMSs a reasonable price for the bhabbar and if the HRMSs are willing to give the mill the first rights of purchase. In the past, because the mill has received reduced rates from the HFD, it is resistant to pay open market prices. It is likely there will be continued resistance among commercial forest product users if Indian forest departments give forest communities priority access to low harvesting rates, while taking them away from contractors and industries.

Reactions of Private Contractors

The system of auctioning annual bhabbar leases to private contractors essentially transfers forest protection responsibilities for the leased area from HFD staff to an individual during the lease months. In the past, both groups have relied on policing methods to keep villagers out of forest areas. In the case of contractors, due to their personal interest in maximizing their financial returns, they are not only more forceful than the mill in keeping villagers out, but also want to maximize their profits by charging villagers high rates for both fodder and bhabbar grass.

Since the HFD's Joint Management Program tries to replace the individualized control of contractors by community management, not unexpectedly some local contractors have attempted to undermine the establishment of joint forest management agreements in some villages During a joint meeting between representatives of 4 villages (Prempura, Jattan Majri, Khera & Basaula) to resolve inter-village conflicts, a contractor prevented a meaningful discussion from taking place by raising the bogey of villagers being permanently deprived of their traditional rights in the forest area

In other cases, however, due to some HRMSs yet not having developed the capacity to manage their lease area by themselves, some private contractors have benefitted by obtaining grass leases which were intended for community management This happened particularly from 1986 to 88 when some HRMS could not raise the lease fee and were forced to rely on local contractors who deposited the lease money on behalf of HRMSs, thereby getting the lease at a concessional rate In such cases the contractors retained most of the profit from bhabbar, giving only a small royalty to the concerned HRMS. In future, if the capacity of HRMSs to harvest and market bhabbar increases, private contractors maybe forced out of the market. It remains to be seen whether they will attempt to further hinder the process of consolidating the HRMSs programme.

Reactions of the Haryana Forest Department

When the HFD decided to begin leasing bhabbar compartments to HRMSs in the mid 1980s senior forestry officials assumed participating communities would start rope (baan) making, thereby generating employment and income earning opportunities as the pilot project in the harijan community of Nada had done. Subsequent monitoring, however, indicated that only the forest enclave communities comprised of Bhanjjara Sikhs were significantly engaged in rope production The Gujjar, Jat, and upper caste villages had neither the experience nor the desire to enter into rope production Rather, their interest in the bhabbar leases was to gain control of the resource and use this new asset to generate income through sales These communities usually sub-let their bhabbar harvesting right to contractors, after permitting their own members to collect small amounts for their own use Often the community did not even harvest the bhabbar, instead, they sub-contracted the work to private contractors

The HFD feels uncomfortable with this situation Some senior officers feel that many HRMSs are simply taking on the middleman role between the HFD and the paper mill and other bhabbar consumers with little benefit to the villagers They argue that if the HRMSs are going to make a middleman's profit, the HFD could sell the bhabbar directly Many foresters feel that while it is alright for villagers to use the forest produce for their personal needs and small industries, it is improper for them to manage it commercially as a raw material Some Forest Department officers believed that communities that intended to sell the raw material should not be given grass leases, and that only personal consumption would warrant giving HRMSs priority access Outside resource persons associated with the program countered that joint management should be based on assuring villagers a share of all forest produce in return for their participation in forest management, irrespective of what they eventually do with it Further, they argued that given the HRMS were paying commercial lease rates, often in excess of those paid by the paper mill and private contractors, that they should have the same management rights as these groups

The Forest Department has also questioned the value of encouraging HRMS acquisition of bhabbar lease rights if the contractors who sublease the area obtain much of the commercial profits There is concern that some of the HRMSs may only be performing their protection responsibilities for the months for which the lease is valid just as the contractors do They note that if the societies are serious about longer term improvement of the joint management area, they should protect it throughout year The communities respond that they are often forced to sell sub-leasing rights to contractors to buy the lease, and only if the Department allowed them to pay in installments, as the contractors do, could they escape from a dependency on contractors and capture the profits desired Some forest department staff, however, fear that the HRMS might default on their installment payments since they have no signed contract or

collateral. Since under government law the Range Officer is personally accountable for unpaid leases, their concern is understandable. Some HFD field staff have expressed concern about being held accountable for damage done to forest areas under their charge if the HRMS does not honor their protection commitments. Consequently, HFD field staff are often caught between two contradictory sets of orders - one conforming to their traditional policing role and the new, yet informal demands on them to work in a supportive way with forest communities.

Over the past three years attempts were made to respond to problems like these by first identifying conflict generating issues through process documentation studies, meetings, and informal discussions. The Chief of the Haryana Forest Department has issued a series of guidelines to staff regarding ways to respond to community needs. Currently, a comprehensive memorandum outlining the terms and conditions on which joint management agreements be based is being drafted to respond to HRMS forest managers.

Future Directions

In the preceding pages it is apparent that as the Haryana Forest Department began developing formal lease agreements with an increasing number of villages, the transfer of resource rights generated a number of positive and negative reactions from actors in the area. In this section, the authors attempt to discuss specific issues emerging from the transformation of bhabbar management systems and proposing ways in which the department might respond.

HRMS Federation

A major problem still facing the HFD and the HRMS is a lack of effective communication channels. In the past the HFD bhabbar lease compartments were leased directly to the paper mill and a small number of contractors. The limited number of actors made negotiations relatively easy. Further, lessees like the mill and private contractors, with greater capital, mobility and a superior knowledge of HFD procedures, could interact with the Department with relative ease. With 8 HRMS now holding leases and many more communities applying the Department must interact with a larger number of actors who have limited mobility, lack capital and knowledge of HFD procedures, and have weak organizational capacity. To discuss lease agreements the HFD must now go to participating villages and negotiate directly, putting greater time demands on departmental staff. When problems arise with HRMS lease holders the Department must attempt to address them in the field. As the number of HRMS lease holders grow, so will staff time demands.

In response to this problem it has been proposed that an informal Federation of HRMS be formed to allow common problems to be discussed on a regular basis in open forums. The meeting organized by the Surajpur HRMS on March 10th, 1991 with 17 HRMS participating was the first attempt to establish dialogue between community management groups. The purpose of the meeting was to address common problems confronted by HRMS in managing bhabbar grass leases and other forest resources. The following issues were raised with recommendations proposed by various HRMS regarding how existing problems might be solved.

Lease Compartment Boundary Setting

Some communities find that the area of existing lease compartments is too large for them to manage or protect. In some cases, 2 to 4 villages share traditional rights in an existing compartment and desire subdivision of the area between them to facilitate more equitable sharing of lease costs and benefits. In one case the HFD has changed compartment boundaries without making a proportionate reduction in the lease amount payable by the HRMS. In some cases, access to parts of the compartment is through areas falling under the Forest Dept. of the Union Territory of Chandigarh. In some cases these areas were leased to other parties who often refused HRMS members right of way. It was proposed that the HFD work

closely with participating communities to solve these problems. In some cases, it may be necessary to reach agreements with HRMSs by subdividing some of the compartments to better correspond to areas communities are able to protect and harvest. The determination would be made jointly by the participating communities and field staff after collaborative field mapping exercises. Primary consideration in determining the boundaries for bhabbar lease sub-compartments would be the communities' raw material needs, managing and harvesting capacity, prior use rights, and neighboring communities' acceptance.

Lease Rate Setting

According tp the November 1988 directive of the area's Divisional Forest Officer, HRMS are exempt from open auction bidding, but their bhabbar lease rate would be subject to a 10% annual increase. While some HRMS had enjoyed a constant rate since the first lease was issued to Sukhomajri and Dhamala in 1986, the rapid increases in 1989-90 and 1990-91 raised considerable concern among all HRMSs taking leases. While some HRMS were experiencing considerable increases in yields over previous mill and contractor lease periods, due to better protection and reduced theft, rainfall levels and spread of Lantana had significant effects on output, sometimes lowering productivity compared to previous years. Consequently, fixed rate lease price increases did not reflect the value of the harvest and in any case, annual price increases of 10% are too arbitrary and too high. In response to these complaints, a new pricing system is being proposed. Under the proposed system the HRMSs would pay a per quintal (100 jgs) rate for the actual amount harvested. In subsequent years, the per quintal price may be increased by 2% annually. However, for any production increases the HRMSs are able to achieve through better protection and enrichment planting, they would be charged at only 20% of the normal rate. Consequently, 80% of the increased production will be their share for participating in improved management.

Lease Payment Scheduling

Under the new program HRMSs have not been allowed to make their lease payments in installments, unlike contractors who were allowed three installments. Initial lump sum payments of the entire amount put considerable pressure on the communities' ability to raise Rs.20,000 to Rs. 65,000 ($1,100 to $3,400) at one time. In some cases communities were unable to generate such a large sum and lost the lease to contractors. It has been recommended that in coming years HRMS also be allowed to pay in three equal installment and an initial down payment of 10%. To qualify for installment payment the HRMSs will have to sign a legal contract with the HFD.

Income Tax Exemption

For the past two years, all HRMSs have been subjected to a 15% central government income-tax on their lease price. This has further raised the cost of the bhabbar lease. It is apparent, however, that under Indian tax law, non-profit societies may seek income-tax exemption. Further, commercial raw materials used directly for processing are tax exempt. Therefore, HRMS using bhabbar grass for rope making could also be eligible for exemptions. It was proposed that the HRMS establish their accounting and profit distribution systems to support low cost grass prices for members and community level development activities, freeing them from further tax liabilities under the non-profit societies clause. Rope producing communities can also claim exemption as raw material processors. The proposed HRMS Federation could facilitate the processing of tax exemption claim filing. Until the HRMS receive tax exemption, it has also been suggested that the HFD agree to reduce per quintal rates to Rs. 24, or 15% below the rate given to the paper mill.

Enhancing Bhabbar Production

While bhabbar productivity is determined in part by rainfall patterns, there are a number of strategies within the reach of the HFD and HRMS to enhance output. Many HRMS have effectively controlled grazing

In their lease compartments by selling goats and low grade cattle, while shifting to stall feeding. There is also a need for some HRMS to meet with neighboring villages with grazing animals which encroach on the lease area to reach agreements on closing lease areas. In some communities, insufficient fodder availability has forced some families to harvest new bhabbar shoots for fodder. Through supplemental fodder grass and leaf production on private, common, and forest land, the more valuable bhabbar fiber grass could be maintained for rope making and paper pulp sales. Microplanning exercises could help HRMS members to estimate their fodder needs and plan supplemental planting schemes.

Some HRMS have complained that the World Bank funded Kandi watershed project is negatively effecting bhabbar production in their lease areas. They are particularly resentful about the planting of Dudonea and Vetiver under the project. There is already a lot of natural Dudonea in the forest and Vetiver is of no value to them, besides not being a local species. It is planned to hold joint meetings with Kandi project authorities and field staff, and local HRMS to discuss how community and Kandi project objectives might be made complementary. Joint microplanning exercises need to be organized in each area where Kandi project and community management groups have interests. Priority should be placed on reaching agreements regarding the citing of physical and vegetative soil conservation measures. HRMS members should have a prominent role in determining the species to be planted in their lease area. Since the Joint Management Support Team developed a microplanning option menu for helping villagers and field staff identify desirable inputs, this should be used for local resource planning activities. Where Kandi project activities reduce bhabbar yields, lease prices should be correspondingly lowered.

A number of HRMS are also concerned over the expansion of Lantana cemara within their lease area. Lantana shades out bhabbar grass reducing production. Some communities have offered to remove Lantana, asking the HFD to reduce their lease payments to compensate them for their labor. Some silviculturalists have noted that Lantana will die off if very broad leaf trees are planted over it, however this would also reduce grass production. Throughout the program area, the regrowth of native Khair trees (Acacia catechu), while encouraging, has also begun to reduce bhabbar productivity. Attention needs to be given to studying succession patterns of forest regeneration in the Shivaliks and how the natural environment might be manipulated to ensure a steady supply of important commodities on a maximum sustained yield basis.

Enrichment planting of bhabbar in open forest lands has proven to be highly successful in a number of sites. Many HRMS members have expressed an interest in bhabbar enrichment plantings on their lease area. Decentralized nurseries and transplanting systems for grass slips should be established with appropriate incentives and extension support from the HFD. HRMS members are also very interested in gaining access to the leaves of Chhal trees (Anogeissus latifolia), an excellent leaf fodder. The process of microplanning would assist HRMS members and HFD staff to identify optimal sites for planting and protection to enhance the productivity of fodder grasses and trees, as well as fiber grass.

Improving Processing, Transport and Marketing Systems

Many HRMS feel they could manage harvesting labor and transport arrangements if they were able to pay in installments and gain rapid approval from the HFD to begin cutting before the grasses dried and lost weight. Through the proposed Federation of HRMS, communities could be assisted in contracting trucks and arranging mill deliveries. The HFD also needs to assist HRMS in organizing direct harvesting and marketing arrangements.

In the case of rope making communities, political disturbances in Punjab have disrupted rope distribution channels to larger markets, flooding local rope markets and forcing prices down. The HFD and the proposed Federation should begin developing new market channels to allow rope producing HRMS access to larger, more distant urban markets with higher prices.

Summary

This paper reviews the experiences of the HFD in transferring management and exploitation rights for an important non-wood forest product, from large industries and wealthy middlemen to forest communities. While some Indian state forest departments give usufructs to villagers for NWFP from public lands, the Haryana Forest Department is perhaps the first such agency to assist communities to organize and to give them priority access to forest harvesting leases. The program has effectively reduced tensions between foresters and forest communities, improving communication and providing a framework for collaborative protection and production activities. Attracted by the opportunity to gain new rights to forest resources, communities have also shown a willingness to accept new management responsibilities. Grazing pressures have been significantly reduced or eliminated in many participating communities, as goats and cattle are sold and stall-fed water buffalo for commercial dairying are purchased. Further, the cutting of regenerating trees and shrubs has declined, while natural regeneration has accelerated correspondingly and soil erosion has diminished.

At the same time many problems remain. While some participating communities have gained secure access to fodder and fiber grasses at considerably reduced costs, others have legitimate complaints about price setting, boundary problems, and payment requirements. The HRMS fiber grass lease agreements were undermined by irregular price setting procedures combined with changing yield levels and fluctuating or falling market prices. In many cases, HRMS with insufficient capital to buy leases were forced to borrow from contractors creating "shadow holders" of leases. Finally, the HRMS had difficulties with effectively marketing grass to the mill, which is also concerned over the loss of direct control over lease compartments.

These problems stemmed from the HFD's limited capacity to monitor bhabbar productivity and set prices accordingly, and resistance of mid-level staff to allow HRMS to pay for leases in installments. HRMS had limited ability to respond to marketing problems and opportunities, while the mill felt threatened and desired continued access to subsidized raw materials. In the years to come the program needs to be strengthened through better coordination among the HRMS, better communication of policies and procedures within the HFD, and a clear marketing agreement with the mill. Since, nearly half of Pinjore Range bhabbar lease compartments are already under HRMS management, forestry staff need to develop stable relations with management groups. The rapid rate of transfer among range and beat officers needs to be reduced and systematic staff reorientation programs intensified.

Community grass leasing arrangements also need to be integrated with long term resource management requirements of the larger forest ecosystem. As tree cover increases and forest succession proceeds, grass production will gradually fall and communities will need to continue to benefit through rights to other forest products. While it will take a number of years to evolve new policies and procedures to support the functioning of the HRMS, the program has been able to identify many issues and has begun to address them. The experience of the HFD's Joint Forest Management program is significant as it represents the types of problems other forest departments and communities will likely encounter as they attempt to develop collaborative forest management systems and enhance the productivity and profitability of non-wood forest products for rural families. This shift to collaborative management will continue to require major changes in forest department procedures and working plans.

End Notes

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1. K.C. Malhotra and Mark Poffenberger (eds.) Forest Regeneration through Community Protection: The West Bengal Experience Proceedings of the Working Group Meeting on Forest Protection Committees, Calcutta, June 21-22, 1989

2. Mark Poffenberger, Joint Management for Forest Lands: Experiences from South Asia, January 1990

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8. Marcus Moench, Training and Planning for Joint Forest Management

9. Mark Poffenberger, Joint Forest Management in West Bengal: The Process of Agency Change

10. Mark Poffenberger and Madhu Sarin, Fiber Grass from Forest Land: A Case from North India

11. K.C. Malhotra, Mark Poffenberger, Arunabha Bhattacharya and Debal Dev, Rapid Rural Appraisal Methodology Trials in Southwest Bengal: Assessing Natural Forest Regeneration Patterns and Non-Wood Forest Product Harvesting Practices

12. Rashmi Pachauri, Sal Plate Processing and Marketing in West Bengal

THE LEGAL ECONOMICS OF NATURAL RESOURCES MANAGEMENT AND SUSTAINABLE DEVELOPMENT

By
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THE LEGAL ECONOMY OF NATURAL RESOURCES MANAGEMENT AND SUSTAINABLE DEVELOPMENT

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I. After more than a decade of extensive research and writing concerning common property resources (CPRs), such as forests, natural waters and public lands, there still seems to be a lack of clarity on the operational or normative aspects of what needs to be prescribed for a sustainable and equitable CPRs development, both from the point of view of institutional structures and management of resources. This is true of not only the literature that has developed directly around specific micro-level CPRs studies, such as of village forests and grazing lands, but also those which emerge from macro-policy level studies, such as following from the Burtland Commission Report or the World Charter on Nature.

This paper is an attempt to explore and underscore some of the basic reasons which, in my view, hinder the progress towards finding workable solutions. Unless the basic issues in CPRs management are clearly defined no practical steps can be advocated. Evidently, not all CPRs can be taken up for analysis here, since the issues are complex. For

purposes of illustration the paper will limit itself to the forest resources.

Evidently, there is no presumption here that as a consequence of this analysis appropriate solutions will immediately emerge. The attempt is limited to identifying the basic problematic issues, so that once they are recognised one may know the obstacles that come in the way of clarity, and also the appropriate direction in which the solutions need to be sought.

At the outset, it is also understood that there can be no general solutions or 'basic issues' which are common to all societies. In different socio-economic, political and legal contexts, different issues would be basic, as would their solutions be. The context of analysis here is limited to India, and the hypothesis is that in so far as development of the so called CPRs in India is concerned, the articulation of the agenda and the identification of the issues have themselves been incomplete, if not misleading.

The aim of this paper is to prove the truth of this hypothesis, by explicating the issues. But at the beginning, to make room for the identification of the basic issues and agenda, it is necessary to first mention three factors which seem to obstruct progress towards clarity.

II.

First, much of the discourse on CPRs is based on assumptions which have their roots in the experiences of Western societies, such as portrayed in Hardin's 'Tragedy of the Commons'[1]. The assumption is that the commons will suffer the same or similar fate given similar circumstances elsewhere; but the fact is that in another society 'similar circumstances' do not obtain. In fact for India we do not even have a properly documented history of the use of common natural resources . Hence it is difficult to say whether commons, anywhere, have had a tragic fate for reasons assumed by Hardin. The paradigm or ideal types used as explanatory hypothesis or principles in one society may not be suitable for another. Take the term 'common property' itself; it is heavily loaded with assumptions. In traditional Hindu, Islamic and Roman law entities such as natural water, air and space, which are now being called CPRs, were conceived as being outside of property relationships; they belonged to no one in Hindu and Roman law and to Allah in Islamic law. The relationship of people with these resources were in terms of dominium, sovereignty and eminent domain, which defined a particular role of the state in relationship to these resources. The moment we call them 'property' we are already presupposing a different theory of state in which a different framework of

rights, duties, privileges and powers is generated. From the Indian point of view whether common natural resources should be dealt with through property relationships is itself under question. We shall return to the deeper issues at stake here, subsequently. Here it suffices to indicate how discussion about resources tend to get coloured through generalisation which are actually only specific to some society. To illustrate the point further, take the term 'commons'. For the moment if we even drop the issues concerning property, and mean by 'commons' areas of common access alone, there still remain some complexities. The assumption in most of the writings on CPRs is that 'commons' have to be community, public or state property. This belief that private property should not be of common access or for public good, is again of western origin, where the right to privacy is closely tied up with right to private property. The relationship between these two rights is different in India. The traditional Indian legal system allows and often prescribes, common access to private property, such as wells, tanks, temples, dharmasalas, hospitals and forests. In fact the dharmasastras lay great emphasis on the rich people to build or create such private property for public good, and assert that a great amount of moral merit (punya) is earned through such deeds. Some private property, such as temples, even if built purely

from a selfish motive of earning sufficient moral merit so as to have a better next-life, is de jure common access area by the traditional Hindu law. This tradition of building tanks, wells, temples, dharmasalas and (khairati) hospitals is alive even today in India although the tradition of creating private forests for public good (including dev-vana i.e, forests devoted to god(s) or forests around a temple) has now declined. But there is no reason why this cannot be revived within the Indian ethos. The point here is not to point to one alternative solution amongst many, but only to the fact that any such solution would remain behind a veil if one conceived of 'commons' as community, public or state property only. The use of the term 'common property' for any natural resource or artifact (eg. temple) is highly normative, and not merely descriptive, as seems to have been assumed by most writings on CPRs. One has to unveil the deeper agenda in the use of the terms.

The second reason why articulation of the basic issues concerning natural resources use has been problematic is because political scientists and economists who write about 'CPRs' tacitly or explicitly presume some theory of development --- minimally, what would constitute a more developed state of affairs as regards the use of the CPR by a society or community. If natural resources are to be

sustained what we also simultaneously need are theories of under-development. We need to understand why and how under-development or impoverishment of the resources have occurred or continues to occur in that society. Unless one can stop or reverse the processes which bring about under-development it is of little use to project any theory of development. A forest or water resource which is developed would vanish for the same reasons as before. Although we have clear evidence of destruction of forests, pollution of waters and degradation of land in India, there is very little documentation of the processes that have brought about this under-development, the types of conflicts between user groups and the state and the changes in users and control over resources.

The complexity in advocating any theory of development, with reference to basic needs, such as fuel, fodder, food, water and housing resources for a community, can be more evident if we unveil the tacit assumptions in the 'CPRs' discourse. A simple way to demonstrate this would be to consider the 'Developed' and 'Developing' countries distinction, since a theory of development is implicitly presupposed here. A major difference between Developed and Developing countries, which is already well known, is that whereas in the former barely anyone is directly dependent on the natural resources (CPRs) for their daily fuel, food,

water and housing needs, a majority of the population in the Developing countries are directly dependent on the CPRs for such basic needs. Now if this difference be taken as a criterion of development then in dealing with CPRs issues in India what one should be looking for are ways to decrease people's direct dependency on the CPRs for their basic needs, and not advocating strategies which will retain the status quo, such as grow and protect your own 'community woodlots' and get your basic needs satisfied from it. If people's fuel needs were under consideration, for instance, what we need to be questioning is India's energy policy and practice, where the energy sector (including atomic energy) caters to only the industrial and urban needs . To say that the industrial and urban people will get their energy requirements from hydro-electric, petrol, gas and atomic energy delivered to their premises, and the rest of the vast majority of the rural and tribal people must continue to meet their energy needs from timber and shrubs, which they must not only grow and protect but also fetch by themselves, is to clearly play by double standards. This is not to say that I am opposed to village forests, I would want them for a different reason. The point here is to merely make explicit the basic issue that is involved in a certain criterion of development and what would be its operational aspect if the criterion is

followed to its logical consequence. If the West, or the developed Indians, wish to develop the under-developed, they cannot be applying two criteria of development, one in which one is looking for ways to free people from direct dependency on natural resources, and the other in which one wishes to maintain the status quo. This inconsistency in values creates operational confusion and does not allow one to come up with any clear strategy. What should be one's attitude towards 'CPRs' on a consistent theory of development, is something we need to look into in detail subsequently.

The third reason why articulation of basic issues concerning natural resources use is incomplete, seems to have its roots in the disciplines from which these 'CPRs' have been predominantly studied, namely political science and economics. Besides the fact that the basic assumptions, paradigms, ideal types, theories, etc., in these disciplines are highly coloured by the Western understanding of experiences of its own societies, there is another aspect to the problem. Politics, said Aristotle, is the art of the possible. Political science, therefore, would be a science about this art. Economics too, in a deeper sense, studies possibilities. It is one thing to dwell in the realm of the possible and another to deal with the real. The delimited possibilities that are socially

permissible (and in that sense real) is what the legal framework defines. Law sets and defines the arena of possible human actions (use of resources is one type of human action) which is officially legitimate, and hence within which alone any development work can unfold itself. In short, if politics is the art of the possible then law is the art of the real, and legal science would be the science of the socially actual.

Now any study of social possibilities, whether in political science or economics, which ignores the existing delimited operational possibilities defined by law, will fail to be of significant explanatory or operational value. For example, travel far and wide in India as you wish and talk to the leading property lawyers and tell them that you wish to do something to improve the conditions of 'common property resources', you can be rest assured they will fail to understand what you are talking about. It is only after you tell them that what you intend to improve are forests, grazing lands, natural water sources, etc., that they will be able to work out the appropriate property relationship in each case. 'Common Property' does not exist in the strict legal sense in India. However, once a terminology or discourse begins to get commonly used, albeit by a limited number of people, there are tendencies to use it loosely. Jodha, for example, unwittingly refers to

the grazing lands in Rajasthan as 'common property'.[2] This is not to deny the significance of Jodha's work on traditional grazing practices, but if he would want to demarcate such lands as 'common property', number of additional arguments and research input are required. The point here is not of any semantic quibble. It is to emphasise the fact that if instead of arbitrarily assuming possible property status of land or other resources, one started by first finding out its actual existing legal property (or non-property) status, the likelihood of coming up with appropriate alternative strategies would be greater. An inherent danger in defining resources as 'common property' and commonness in terms of a community's property, in the Indian context, is to lead towards communalism. If a village consists of Muslims and Hindus communities, as many Indian villages do, do we wish to have a separate forest for Hindus and Muslims ? Or for different Hindu castes ? Incidentally, this was how common water resources in tanks and wells were often demarcated earlier. The manner in which one defines 'commonness' is not a simple legal task.

One reason for the lack of operational clarity is due to presumptions about the legal status of resources. The bottom up method, which first looks at the existing reality without assuming what legal (property)

relationships it should be existing in, has additional advantages. It may not only provide one insights into reasons for under-development but also deepen one's understanding about what is involved in sustainable development.

III.

The first thing that becomes evident to any one who looks at the issue of sustainability, without any pre-conception is that there are four sides to the issue: acquisition, utilisation, regeneration and protection. Unless all these four sides are equally balanced there can be no sustainable development. If one continues to acquire without regeneration, or regenerates without protection, or if one's aim is utilisation at any cost, there is little likelihood of sustainable development. Now trite as these remarks may seem, it seems to be totally unknown to the national and international economies. The Burtland Commission Report talks of 'Sustainable Development' mainly in terms of protection and conservation, as does the World Charter on Nature.[3] The West and the international agencies, such as the UNO agencies (e.g. IUCN), want to protect the world's environment, including the ozone layer. But when it comes to acquiring and using the world's resources, such as tropical forests, petrol, marine resources, food resources,

etc., the West wants unfettered access to all resources, no international conventions are called for on such matters. In so far as the utilisation of such resources is concerned, the West wants not only to push in its technology everywhere but also protect the know-how of these means of production. The total number of conventions and protocols to achieve this end, from the days of the Paris Convention to the modern GATT and those concerning intellectual property, far outweigh any other types of conventions. Evidently, it was not obvious to the Burtland Commission, nor is it known to the UNO that there are four nodes to sustainable development. Merely talking about protection will not do. Unless we are simultaneously willing to change the ground rules for acquisition, utilisation and regeneration there is going to be no sustainable development.

This paper is not intended to discuss the international legal economy. However, the interesting fact is that what is true of the international economy is also true at the national level. The principle of sustainable development, however, where the four mentioned aspects have to be balanced, relates to the resource, irrespective of whether national or international agencies are dealing with it. To identify the basic problematic issues concerning natural resources management in India, it will be important to

briefly outline the legal framework within which the economy of natural resources use has been determined in this century and continues to be so governed. This legally defined economy is the actual arena of possibilities, whatever India's National Forest Policy or Water Policy may say. For the purposes here it would suffice to note the general features of laws concerning three basic resources: land, forests and water. Evidently, the network of laws concerning these resources is vast and complex, specially because they are matters of state and not central legislation. All that is attempted here is to outline the salient features from the point of view of the economic operations that these laws permit.

In the colonisation or empire building process the British first dealt with the private land (1857 to 1894), then with common lands (1901 to 1927) and then with water (1910 -1931). Let us have a brief look at the land laws first.

The land settlement or private lands began through the Bengal Land Settlement Regulations of 1857 and onwards. 'Settlement' here essentially meant administrative arrangement for collection of land revenues. Subsequently, the Land Revenue Codes for various states were legislated as the British extended their empire. In so far as the acquisition of land is concerned, the laws culminated in

the Land Acquisition Act of 1894. The important feature of the Act is that it recognises people's rights in land (if their name exists in the revenue records) and is willing to give market rate compensation if land is acquired. From the economic point of view, however, the land revenue laws, as the British discovered by the end of the nineteenth century, gave them control over barely 20 percent of India's land, because only so much of the land was privately settled and cultivated; and the Land Acquisition Act did not give them the power to acquire the vast amount of common lands. So they enacted the Indian Forest Act.

The forest laws, which began with the Chhotanagpur Tenancy Act of, 1901, to Forest Act of 1912, culminated in the Forest Act of 1927. The Forest Act, it must be noted, is not about forests, it is about 'forest land', which need not have any tree on it, it is whatever the government declares as forest land and thereby acquires it. This was the colonial method of getting control of the vast tracts of India's common land, and along with it the [illegible] and minerals that lay under these lands. The Forest Act gives the government full power to cut and sell trees and does not oblige it to plant any. As concerns people's rights in the resources, whereas in the (private) Land Acquisition Act compensation is to be given to right holders, under the common lands acquisition Act (the Indian Forest Act) no

compensation is due to any one; the government, however, is willing to accept some rights of the people over the resources and give it to them as 'concessions'. It must be noted that according to customary law people had numerous rights in forest resources and also duties to plant and protect, and were not merely entitled to some concessions. Moreover, forests inhabited by tribals could not be alienated nor the ownership transferred to anyone. In the traditional law no Indian king 'owned' tribal forests although he proclaimed sovereignty over it. He could therefore, neither donate it to any one nor transfer it to any one else in defeat or through treaty. The British generated a new brand of jurisprudence, in which they said that change of sovereignty meant total ownership right of the new sovereign, whatever the Indian law may say. They thus acquired all tribal forests.

By the time it came to finalising water laws in the nineteen thirties, the empire had grown so strong that the British did not have to bother about the traditional Indian law anymore. They simply declared all natural waters to be governments property, giving itself absolute rights to use the waters in any way it pleased, as is evident in the M.P.Irrigation Act of 1931. This, most of all, was totally contrary to the traditional law. First, natural waters, such as rivers, streams, lakes, seas, oceans, ect.,were not

subject matter of property; and secondly the law recognised the usufruct rights of everyone to use water, as a natural right, and not one that is to be granted by the sovereign, government or state.[5]

The British made laws for natural resources acquisition and use are still operative today. All states of India have adopted the Land Acquisition Act,1894, the Indian Forest Act,1927 and the Irrigation Laws of the thirties, with little variation. The coming of the Constitution has made no difference to the operation of these laws. The Nehruvian model of Planning made the Constitution irrelevant to planning, project designing and execution in India. The Constitution does have a number of things to say about the use of natural resources and natural resource law. A constitutional analysis of these laws, however, is a matter for another occasion. Over here let us evaluate them in terms of the four nodes of sustainable development mentioned earlier.

If we look at the forest situation, there is no law in India which protects trees. The Indian Forest Act and even the Forest Conservation Act of 1980 merely protects forest territory. It allows the government full liberty to cut and sell. As a consequence there is no standing forest in India today the produce of which has not already been contracted out to business houses. Some of these contracts run up to

the middle of next century. Under market pressure (uncertainties) some states have revoked long term contracts and have gone in for short term, including annual, contracts; but contracts nonetheless. There are 'Restriction on Tree Felling Acts' in some states, but these are meant to ensure government's powers over trees on private lands --- permission is required from the state to fell private trees under these and other similar Acts and Rules. So if we notice the first node of sustainability, namely that of acquisition, we see that the state wants unfettered access to all trees --- rights and powers without duty or accountability. This unfettered power can be significant for some states such as Madhya Pradesh and Maharastra, where almost 10 per cent of the gross income to the state exchequer is through sale of trees.

If we take hold of the second node now, namely regeneration, it would be well known to anyone who is aware of the 'scientific forestry' practices in India that the Work Plans of the Forest Department never includes compensatory regeneration. In fact the annual budget outlay of the Department, under the Work Plans, consists of the cost involved in the revenue generation for the state for that particular year. In recent times some money for regeneration has begun to come in through a separate special programme called 'social forestry'. The trees

regenerated through this special programme, however, is insignificant in comparison to the trees felled through the regular Work Plans. The main problem about regeneration is that it requires human labour. The staff available with the Forest Department is a minuscule, in comparison to the labour force required.

As regards protection, the third node of sustainability, although the government may protect the forests (against the people) in some areas at the point of gun, in the vast areas where regeneration is required this strategy will evidently not work, because here the people have to be necessarily involved for the labour requirement. Also if the people know, as they do, that forests have been 'reserved' and 'protected' for industrial use and the major beneficiaries of their labour are the urban rich, they have little interest in protecting the forests. Their interest is limited to the immediate employment opportunity and occasional wages. In the past few years the governments have been trying to create various ad hoc village level committees and promising them usufruct rights to ensure protection of the new plantations. Protection in this manner, as the social forestry schemes of the last twenty years have shown, do not work. First, the people already have rights both under customary law and under the Forest Acts. These rights simply need to be rationalised,

recognised and respected. Second, the rights belong to all in the village, the unit of which is defined by statutes, such as the Panchayat Acts, creating new user groups and vesting special rights in them is legally problematic, if not ultra-vires. The creation of such non-statutory committees, which eventually are mere administrative adjunct of the Forest Department, allows the state to retain the control and ownership of the resources.[7] In any case, making arrangements for protection of trees on wastelands, while the government's overall pattern of acquisition, regeneration and utilisation of forest resources on main forest lands continues, is not a strategy for sustainable development.

In passing, notice that there is little explanatory value in calling forests common property resources. The legal status of the forests are complex, from state to state, and of different types of forests within the same state.

What then are the basic issues concerning forest resources in India? Note that despite all the media campaign and hue and cry about environmental crisis in the last two decades in India (since the Stockholm Conference) the Indian Forest Act, 1927, has been left intact. The enacting of the Forest Conservation Act,1980, merely shifts the power to use forest lands from the states to the

Centre. Since the Forest Act permits continuance of a particular industrial policy, namely unfettered exploitation of forest resources, not wanting to amend the Forest Act implies not wanting to change this industrial policy. It must be noted that under the Industrial laws a great number of incentives are given to forest based industries to take up and locate their work in 'backward' areas (sic). The backward areas under the industrial and other development policies are precisely those which we would called ecologically rich areas. The forest resources have also been sold, and continue to be sold at extremely subsidised rate to the industries.

The first basic issue, vis-a-vis forests, hence, is rationalisation of the industrial policy, since they are the biggest consumers of forest resources. Once we are clear about this alternatives need to be sought here, should industries be forced to import --- the one adopted by Japan and most of the Western countries, a different type of import, taxation, excise, etc., laws would have to be evolved; should it be mandatory for them to generate their own resource, and the government closes down its shop ? Should the industries be forced to buy from private sources only and the government forests declared for use of the rural and tribal people alone, since their demand is very small as compared to those of the industries. There

are various alternatives, but it is important to note that it all relates to industrial policy and practice. It also demands a different type of zoning scheme in which 'backward' and 'advanced' areas are defined differently.

The second basic issue concerning forest land relates to land reforms. In the case of agricultural lands it was clearly realised that unless major land reforms measure were implemented the likelihood of increasing the productivity of land was remote. A major principle involved here was 'land to the tiller', i.e., unless the tiller owned the land his interest in protecting it and increasing its productivity would be marginal. The zamindar's (landlords) lands, where the farmers were merely employed as labourers, or where they were even promised extra usufruct rights, were not the most productive or well protected. Now the Forest Department is exactly in the same position as the zamindars, although the major benefits from the forest lands have not been going to the forest officials. The comparison is in terms of management. Like the zamindars the Department operates through contract labour, daily or occasional wagers and casual labour. If the zamindars did not succeed in improving the productivity of land by promising usufruct rights to people, on what grounds does the Forest Department think it will ? Evidently, like the Zamindari Abolition laws of the

sixties, some major land reforms is necessary in this zamindari too. Using the 'land to the tiller' principle, appropriate agents and agencies need to be identified to take up the task. Evidently, other related laws would be required to ensure that the land demarcated for forest is not used for anything else or does not lie vacant, just as in the case of agricultural land.

So long as we keep talking of the marginal issues, or issues which purposely subvert our attention from the main issues it is unlikely that sustainable development can occur. Moreover, so long as we keep forgetting that sustainability is a four legged animal, and keep talking about protection or conservation alone, it would be impossible to get this animal stand on its feet, leave alone make it walk.

In this paper I have taken the example of forests alone to attempt to prove the truth of the hypothesis stated at the beginning. To argue the case for other issues a much longer and complex story would have to be told. For example, the issue concerning fuel resources to the people, as mentioned earlier, requires going into the whole energy policy in India, including the cost-benefit ratio involved in production of hydro-electricity, in the manner in which it is presently done. The question of grazing lands and fodder need, similarly, will involve us in complex issues of land reform and zoning, on the one hand, to the

alternatives of stall feeding on the other. These issues require separate detailed analysis.

Before concluding, one dimension of property relationships that was merely mentioned earlier needs to be recaptured again so that further thought could be given to it. It was mentioned that in traditional Hindu law common resources such as natural water was outside the scope of property relationships. Mahatma Gandhi had suggested that all natural heritage of mankind must be held in common trust. He had attempted to develop his own theory of trusteeship. It is interesting to note that the common trust theory has also independently developed in American law, as the Public Trust Doctrine, most elegantly emphasised recently in the Mono Lake case. Under the Trusteeship theory or the Public Trust Doctrine the state is merely the trustee of the resource and not its owner. So far the Public Trust Doctrine has been applied to water resources alone. But there is no reason why it cannot be applied to forests and other natural heritage, where the state needs to play a role in the regulation of the use of resources. The notion of 'Public Trust' includes in itself duties towards the people and accountability, which notions of ownership do not. Such ideas need to be thought through, but they are of vital importance for the type of law reform concerning forest resources discussed earlier.

FOOTNOTES

1. Garrett Hardin, 1968, "Tragedy of the Commons", Science.

2. N.S. Jodha, "Common Property Resources and Rural Poor in Dry Regions of India.", Economic and Political Weekly, xxi: 27 (July).

3. UNO (Pub): Protection of Environment and Sustainable Development., Matinus Nijhoff, Hague, 1987.

4. For more details on the issues see: Chhatrapati Singh, " The International Environmental Law Agenda", Paper presented at the IUCN/CSE organised Conference on 'South Perspective on Environment and the Role of Social Scientists.'; 10 th Aug. 1991, New Delhi.

5. For details see: Chhatrapati Singh., Water Rights and Principles of Water Resources Management. Indian Law Institute Publication. New Delhi, 1991.

6. For details: Chhatrapati Singh, " Legal Appraisal of India s Tropical Forestry Plan", Planning Commission / World Bank Report, New Delhi, 1990.

7. For details: Chhatrapati Singh, "Joint Management Plans and the Notifications," in Wasteland News (SPWD) Aug.1991. Also :" Women s Involvement in Wasteland Development", ILO Report, New Delhi, 1990.