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Conceptualising environmental collective action: why gender matters

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This paper demonstrates how institutions for natural resource management (such as community forestry groups), which appear to be participative, equitable and efficient, can be found lacking on all three counts from a gender perspective. It also examines possible gender differences in social networks, values and motivations. Although there is little to suggest that women are inherently more conservationist than men, the distinctness of women's social networks embodying prior experience of successful cooperation, their higher dependence on these networks (as also on the commons in general), and their potentially greater group homogeneity relative to men, could provide an important (and largely ignored) basis for organising sustainable environmental collective action. The paper also outlines the factors that can constrain or facilitate women's participation in formal environmental management groups. Illustrative examples are drawn from rural South Asia.

Key words: Gender, Environmental institutions, Collective action, Community forestry groups, Social networks
JEL classification: Q20, Q23

There is today a burgeoning theoretical and empirical literature from several disciplines on collective action for natural resource management.[1] This has generated a complex set of interrelated questions: What are the implications of emergent community institutions of natural resource management for equity and efficiency? What factors are most conducive to initiating and sustaining community action in such institutions? How do social networking, moral values, norms of trust and reciprocity, and relative proclivity toward altruism versus self-interest, impinge on prospects for sustained cooperation in managing natural resources?

Strikingly, these issues have been little examined from a gender perspective. Does this silence imply that men and women can be treated as identical actors in the process of environmental collective action? Are they similarly affected by such action? Do they have similar motivations and experiences of cooperation? Do they have the same interests and preferences in environmental conservation and face the same constraints in participating

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[1] See especially, Baland and Platteau (1996), who provide one of the most recent discussions of the literature and debates. See also Ostrom (1990), and Wade (1988).

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in environmental management institutions? If not, then we need to re-examine many dimensions of the current debate.

This paper explores these dimensions and outlines how neglecting gender can (i) lead to a misassessment of the success of existing community institutions for environmental management, in terms of participation, distributional equity and efficiency; and (ii) cloak opportunities for forming and sustaining successful environmental management groups through women's more substantial involvement. Illustrative examples are taken mostly from rural communities in South Asia. The conceptual issues raised here, however, would have wider relevance.

Section 1 provides a gender perspective on the performance of rural environmental management groups in South Asia, drawing upon both existing case studies and my field visits and interviews in 87 community forestry sites located in five states of India and two districts of Nepal, between September 1998 and February 1999. It also draws upon my fieldwork in 1993 and 1995 in selected sites in India. Sections 2 and 3 examine whether there are gender differences in social networking, values and motivations that could make for greater cooperation among women, both in general and in relation to environmental collective action. Section 4 outlines the forms of women's involvement in environmental action and constraints to their greater participation, and Section 5 contains concluding comments.

1. Assessing group functioning: participation, equity and efficiency[1]

Three important criteria for judging the performance of community institutions for environmental management would be: the extent of community participation in decision-making, equity in the distribution of costs and benefits, and efficiency in protecting and regenerating the resource. On all these counts, institutions which look successful may be found lacking from a gender perspective, as is illustrated by South Asia's experience in community forest management.

A range of community forestry groups (henceforth called CFGs) have emerged here in recent years. In India, some groups have been state-initiated, taking the form of various co-management arrangements, such as the Joint Forest Management (JFM) programme launched in 1990, which so far covers 19 states. Under it, village communities and the government share the responsibility and benefits of regenerating degraded local forests. Non-governmental organisations (NGOs) sometimes act as intermediaries and catalysts. Other groups have been initiated autonomously by a village council, youth club or village elder, and are found mainly in the eastern states of Orissa and Bihar. Yet others have a mixed history, such as the *van panchayats* or forest councils in the Uttar Pradesh (UP) hills of north-west India, created by the British in the 1930s to manage certain categories of forest. Many of the councils have survived or been revived in recent years by NGOs or villagers. Of the groups of various origins, those initiated under the JFM programme are the most widespread, both geographically and in area covered: there are today an estimated 21,000 such groups, covering about 2·5 million hectares (or 4%) of largely degraded forest land (SPWD, 1998, p. ix). The programme is ultimately expected to include all states of India. Self-initiated autonomous groups and *van panchayats* are more regionally concentrated.

Similarly, in Nepal, under the Community forestry programme launched in 1993, the users of a given forest are constituted into forest user groups entrusted with managing and drawing benefits from that tract of State forest. Unlike most JFM groups in India, Nepal's CFGs can receive even good forest land and so far manage 15% of the country's forest area, the target being 61%. Micro-level forest management groups have also emerged elsewhere in Asia (Poffenberger *et al.*, 1997).

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[1] See also Agarwal (1997A, 2000).

CFG management is through a two-tier structure: a general body of members (which can include all village households) and a smaller executive committee. The CFGs perform a range of functions: framing rules on forest use, deciding on penalties if rules are broken, resolving conflicts, organising cleaning and cutback operations, distributing forest produce or benefits thereof, and organising patrol groups or hiring watchmen.[1] Who has a voice in these bodies thus has a critical bearing on how well they function, and who gains or loses from their interventions.

In terms of immediate regeneration, many of these initiatives have done well. Sometimes replanting is undertaken, but where the rootstock is intact, restrictions on entry and protection efforts in themselves can lead to rapid natural revival. For instance, several degraded forest lands that I visited in the semi-arid zones of western India, which in the early 1990s provided little other than dry twigs and monsoon grass, have been covered with young trees within five to seven years of CFG protection. Apart from an increase in tree density, incomes are reported to have risen and biodiversity to have been enhanced.[2] Some regions also report an improvement in the land's carrying capacity, reflected in a notable rise in milch cattle numbers since protection began (Arul and Poffenberger, 1990). Several other parts of the country show an increase in earnings from the sale of items made from forest raw materials (Kant *et al.*, 1991), and a fall in seasonal outmigration (Viegas and Menon, 1991; Chopra and Gulati, 1997).[3] A number of villages have even received awards for conservation.

Viewed from a gender perspective, however, these results look less impressive in terms of participation, the distribution of costs and benefits, and efficient functioning.

1.1 Participation

Women usually constitute less than 10% of the CFG general body membership in both India and Nepal.[4] In India's JFM programme, for instance, membership at the household level is 70–80% in many villages, and in some cases it is 100%. But eight out of 19 JFM states allow only one member per household—this is inevitably the male household head. In some states, both spouses are members, but this still excludes other household adults. Only two states allow membership to all village adults.[5] In the autonomous groups, the customary exclusion of women from village decision-making bodies has been replicated in the CFGs. But even where membership is open to women, their presence is sparse.

Women's presence on executive committees is also typically low; or there is an incongruity created by the mandatory inclusion of one or two women on the executive committee with very few women in the general body. The women so included usually constitute a nominal rather than an effective presence, since they are seldom selected or elected by village women as their representatives or for their leadership qualities. Membership apart, when women do attend meetings, they seldom speak up, and when they do speak, their opinions are given little weight. Nepal's CFGs present a similar picture (Moffatt, 1998).

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[1] In the case of JFM, most of these functions are undertaken jointly with a forest department official.

[2] Raju *et al.* (1993), Arul and Poffenberger (1990). My field visit to Gujarat in 1995 also confirmed this.

[3] See also Raju *et al.* (1993) and SPWD (1994) for documentation on returns from CFG protection, in various regions.

[4] See Roy *et al.* (*c.*1992), Guhathakurta and Bhatia (1992), and Narain (1994) on JFM; Kant *et al.* (1991), Singh and Kumar (1993) on India's autonomous groups; Ballabh and Singh (1988), Sharma and Sinha (1993) on *van panchayats*; and Moffatt (1998) for Nepal.

[5] See Agarwal (2000) for details of JFM membership conditions for the general bodies and executive committees in different states.

In effective terms, therefore, most CFGs in South Asia are 'men's groups' with, at best, a marginal female presence. Mixed groups with significant female presence are proportionately few and there is a small percentage of all-women's groups—an estimated 3% of all groups in Nepal (Moffatt, 1998, p. 37), and probably even less in India. These all-women CFGs are usually found in areas of high male outmigration, or where they have been especially promoted by a local NGO or donor agency. They typically control very small plots of mostly barren land, while male-controlled CFGs receive the larger and better forest areas.

Despite their virtual absence from male-controlled CFGs, women often play an active role in the protection efforts, keeping an informal lookout or forming patrol groups parallel to men's, because they feel men's patrolling is ineffective. In almost all the villages I visited, many women recounted cases of apprehending intruders, persuading any women they saw breaking rules to desist, fighting forest fires alongside men (or even in men's absence), and so on. Women's limited participation in decision-making, however, means that they have little say in the framing of rules on forest use, monitoring, benefit distribution, etc., with implications for both distributional equity and efficiency.

1.2 Distributional equity

Gender inequities characterise CFGs in the sharing of both costs and benefits. While costs associated with membership fees, patrolling time or the forest guard's pay are usually borne by men, the costs of forgoing forest use are largely borne by women. This includes time spent in searching for alternative sites for firewood and fodder, using inferior substitute fuels, stallfeeding animals, losing income earlier obtained from selling forest products, and so on.

Of the 87 CFGs I interviewed on my 1998–99 field visits, for instance, 52% have banned firewood collection. About half of these do not open the forest at all, and the rest allow restricted collection for a few days a year. Where previously women could fulfil at least a part of their needs from the protected area, they are now forced to travel to neighbouring sites, involving additional time, energy and the risk of being treated as intruders.[1]

In some sites in the Indian states of Gujarat (west India) and West Bengal (east India), when protection started, women's collection time increased from 1–2 hours to 4–5 hours for a headload of firewood, and journeys of half a kilometre lengthened to 8–9 kilometres (Sarin, 1995; my fieldwork in 1993, 1995). Sometimes, mothers seek help from school-going daughters, with negative effects on the daughters' education.

Where possible, women shift to substitute fuels: twigs, dung cakes, agricultural waste, etc. These require extra time to ignite or to keep alight, and constant tending. Some economise on fuel by heating bath water in winter only for their husbands and not for themselves, eating cold leftovers, and so on. Many in the poorest households are compelled to steal from their own or neighbouring tracts of protected forest, and risk being caught and fined. As some poor, low-caste women in the UP hills told me in 1998: 'We don't know in the morning how we will cook at night.'

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[1] See Sarin (1995) and Agarwal (1997A).

Over time, these hardships have at best been alleviated in some areas; rarely have they been eliminated. Firewood shortages continue to be reported even 8 or 9 years after protection began in many of the villages I visited across several states, including in 18 of the 19 Gujarat sites. Some existing estimates suggest that several times more can be extracted sustainably than is currently being allowed (Shah, 1997). The persistent shortages women face in these contexts thus appear to have more to do with their lack of voice and bargaining power in the CFGs, than from a lack of aggregate availability.

Inequities also stem from the distribution of benefits from protection. In some cases the benefits are not distributed at all but put into a collective fund and used by the groups as they see fit. A number of the autonomous groups in Orissa (east India) managed by all-male youth clubs, for instance, have been selling forest products, including the wood obtained from thinning operations, and using the proceeds for religious festivities, a club house, or club functions. In many poor households that cannot afford to buy firewood and other products (which they had earlier collected free), the burden of finding alternative collection sites, or doing without, again falls mostly on women.

Where the CFGs distribute the benefits, women of non-member households receive none, since entitlements are linked to membership. But even in member households it is men who usually receive the benefits directly, either because they alone are members, or because distribution is on a household basis, so that despite both spouses being members they get only one share, which the man receives. Women might gain indirectly if the benefits are in kind (say as firewood), but if they are in cash, money distributed to male members is seldom shared equitably within the family. In many cases, the men have spent the money on gambling, liquor or personal items (Guhathakurta and Bhatia, 1992). This is in keeping with the pattern also noted among poor households outside the context of forest management, where women are found to spend most of the income they control on the family's (especially the children's) basic needs and men are found to spend a significant part of their income on personal consumption.[1] In the absence of direct claims to CFG benefits, both women's and children's welfare can thus be affected adversely. Not surprisingly, in a meeting of three JFM villages of West Bengal, women, when asked about benefit-sharing, all wanted equal and separate shares for husbands and wives (Sarin, 1995). Similarly, in a number of Gujarat villages I found that attempts to enlist more women members into CFGs were proving unsuccessful, since the women were demanding their own share in the benefits as a condition for joining, while existing CFG rules allowed only one share per household.

Thus, many cases, that an ungendered evaluation would deem success stories of participative community involvement in resource regeneration, are found to be largely non-participative and inequitable from a gender perspective.

Of course, a lack of participation in CFG decision-making is not the only cause of gender-unequal sharing in costs and benefits. A number of other factors would also impinge on this, including the pre-existing gender division of labour and the initial resource endowments (such as land and assets) that women or their households possess. For instance, since the main responsibility for firewood and fodder collection, animal care, cooking, etc. falls on women, they also end up shouldering the burden of finding other fuel and fodder sources when the forest is closed. Again, women who neither themselves own land or trees, nor belong to households that do, bear the biggest costs of forest closure. Such inequalities are often sharp. Briscoe's (1979) village study in Bangladesh is indicative: he found that 89% of all fruit and fodder trees were owned by 16% of households, which also owned 55% of the cropped area and 46% of the cattle. Over and above these considerations, however, women's absence from the decision-making forums of the CFGs makes a critical difference to gender distribution since that is where the rules on cost and benefit sharing are made.

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[1] See Mencher (1988) and Noponen (1991) for India. See also Blumberg (1991) for some other countries.

Moreover, women's absence from the CFGs can indirectly affect intrahousehold benefit sharing in so far as relative contributions affect *perceptions* about claims (Agarwal, 1997B; A. K. Sen, 1990). Women and girls who were seen to be contributing to such activity would be better placed to claim benefits.

1.3 Efficiency

Women's lack of participation in CFG functioning can also have adverse implications for efficiency and sustainability. At least three types of inefficiency could arise. One, some initiatives may fail to take off. Two, those that do take off (such as the cases of successful regeneration cited above) may show efficiency gains in the short run, but be unsustainable in the long run. Three, and relatedly, there may be a significant gap between the efficiency gains realised and those potentially realisable (in terms of resource productivity and diversity, satisfying household needs, enhancing incomes, stemming outmigration, etc.). These inefficiencies could arise from one or more of the following problems, some of which have already surfaced, and others may be anticipated.

First, there are *rule enforcement problems*. Since (as noted) it is women who regularly have to collect firewood, grasses, and non-timber forest products, their lack of involvement in framing workable rules for protection and use creates tendencies to circumvent the rules. In almost all the villages I visited, there were at least a few cases of violation. Violations by men are usually for timber (for self-use or sale) but violations by women are typically for firewood, especially if they are poor and landless. In Agrawal's (1999) study of a *van panchayat*, 70–80% of the reported violations were by women (either from the same or nearby villages), most of whom appear to have been poor and low caste. In some Orissa villages that I visited, women found the forest closure rules formulated by the all-male committee so strict (the forest was not opened even for a few days per year) that they finally took up a separate patch for protection. In most regions, however, women lack this alternative. Many express deep resentment at the unfairness of existing rules.[1]

If consulted, women usually suggest less stringent and more egalitarian rules (my fieldwork in 1998–99). A women's group in the UP hills recognising that 'the male members of the forest committee have difficulties implementing the rules', persuasively argued that if the men were to discuss the problems with the women, more 'mid-way' rules could be devised which would prove more effective and viable in the long run (Britt, 1993, p. 148).

A second source of inefficiency lies in *information flow imperfections* along gender lines, both within and outside households. Information about the rules framed, or changes in rules, such as in membership eligibility conditions or on other aspects of forest management, do not always filter down to the women, nor is there any inbuilt mechanism for their feedback. In a study of two West Bengal villages, only a small percentage of women in one village and none in the other had been consulted before CFG formation, or were aware of the role of members within the CFG (Sarin, 1998, p. 40). Similarly, male officials seldom consult the women when preparing village micro-plans for forest development, or at best do so at the very early stages and without a follow-up. Some women hear about the plans through their husbands, others not at all.[1] These communication problems can prove particularly acute in regions of high male outmigration.

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[1] See also, Shah and Shah (1995), Singh and Kumar (1993) and Agarwal (1997A).

Thirdly, efficiency issues can arise from *inaccurate assessments of resource depletion*. For example, there can be gender differences in abilities to identify the state of the local resource base. During my field visit to Gujarat in 1995, a woman's informal forest patrol group took me to their patrol site, and pointing out the illegal cuttings that the men had missed, noted: 'Men don't check carefully for illegal cuttings. Women keep a more careful look-out.' Part of this gender difference arises because women, as the most frequent collectors of forest products, are more familiar with the forest than men who use the forest sporadically. Culling information on the frequency of fuelwood collection from 13 regions in six states in India, I found that in nine regions women collected daily, and in four others once every two to four days (Agarwal, 1997A, p. 12).

Fourthly, and relatedly, inefficiencies arise due to *problems in catching transgressors*. Where protection is informal, women, given their greater contact with the forest, are more likely than men to spot transgressors. But even where formal patrol groups exist, all-male patrols or male guards face cultural constraints in physically catching women intruders. Sometimes, usually where the intruders are from another village, these women's families even threaten to register police cases against members of the patrol.

Where women voluntarily take up patrolling by forming informal groups to supplement men's efforts, it can significantly improve protection. In Sharma and Sinha's (1993) study of 12 *van panchayats*, all the four that they deem 'robust' and successful have active women's associations. They note (1993, p. 173): 'If the condition of the forests has improved in recent years, much of the credit goes to these women's associations.' Even though these associations have no formal authority for forest protection, they spread awareness among women of the need to conserve forests, monitor forest use, and exert social pressure on women who violate usage rules. Pandey (1990, p. 30) similarly observes from her Nepal study: 'Without [women's] genuine support in this venture, an unfenced forest, located in the middle of four villages and containing such favoured species could not have existed for nearly a decade without a watchman.'

However, women's informal groups lack the authority to penalise offenders, who must be reported to the formal (typically all-male) committees. This bifurcation of authority and responsibility along gender lines systematically disadvantages women, while increasing their work burden, and is likely to prove less efficient than where responsibility and authority coincide. In a number of cases, I found that women had abandoned their informal efforts because men's committees or male forest officials had time and again failed to take any action against those whom the women apprehended.

Fifthly, and relatedly, the effective *conflict resolution* that is necessary for efficient functioning is made problematic with women's virtual exclusion from the formal committees. For instance, when women catch intruders, they are seldom party to discussions or decisions on appropriate sanctions. Women often get excluded from conflict resolution meetings even when the dispute directly involves them.[2] Where they are called, and the conflict involves men, they often feel the settlements are male-biased (Roy *et al.*, 1993).

A sixth form of inefficiency stems from the *non-incorporation of women's specific knowledge of species-varieties*. While there is little to support the romanticised view (e.g., Shiva, 1988) that women are the main repositories of environmental knowledge, there is evidence that women and men are often privy to different types of knowledge. This difference arises from the gender division of labour, and gender differences in spatial mobility and age. Where women are the main seed selectors and preservers, they are substantially better informed about seed varieties than are the men (Burling, 1963; Acharya and Bennett, 1981). Similarly, women as the main fuel and fodder collectors can often explain the attributes of trees (growth rates, quality of fuelwood, medicinal and other uses, etc.) better than the men (Pandey, 1990), or can identify a large number of trees, shrubs and grasses in the vicinity of fields and pastures (Chen, 1993). Knowledge of medicinal herbs is similarly use-related and gender-specific.[1] Gender-differentiated knowledge can also result from differences in male–female spatial domains: men are often better informed about species found in distant areas, and women about the local environment where they collect (Jewitt, 1996; Gaul, 1994).

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[1] See, for example, Guhathakurta and Bhatia (1992), Singh (1997) and Correa (1995).

[2] My field visits, 1998–99; see also Sarin (1995), Nightingale (1998).

The systematic exclusion of one gender from consultation, decision-making, and management of new planting programmes is thus likely to have negative efficiency implications, by failing to tap either women's knowledge of diverse species for enhancing biodiversity, or their understanding of traditional silvicultural practices when planting species they are better informed about. Some NGOs have recognised the potential of women's specific knowledge and tapped it for promoting medicinal herbs in the protected areas. There are also examples of women's groups resisting male pressure for planting the commercially profitable Eucalyptus and instead selecting diverse species, using their substantial knowledge of local trees and shrubs (Sarin and Khanna, 1993). But such examples are rare.

A seventh form of inefficiency can arise from ignoring possible *gender differences in preferences for trees and plants*. Women often prefer trees which have more domestic use value (as for fuel and fodder), or which provide shade for children grazing the animals, while men more typically opt for trees that bring in cash.[2] The exceptions are cases where existing forests provide adequate fuel and fodder and where women too may choose commercial species for new planting (Chen, 1993). Women's greater involvement in forest development would ensure that forest micro-plans provide for a larger portion of household needs, thus enhancing their commitment to the initiative.

Basically, assessments of environmental initiatives in terms of participation, distributional equity as well as efficiency can all prove inaccurate if gender differences are ignored. Ignoring gender also violates several of the conditions deemed by many scholars as necessary for building successful and enduring institutions for managing common pool resources (see discussion in Baland and Platteau, 1996). These include conditions such as:

> 'Most individuals affected by the operational rules . . . participate in modifying [them]' (Ostrom, 1990, p. 90); and the rules are kept simple and fair (McKean, 1992).
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> 'Monitors, who actively audit [common pool resource] conditions and appropriator behaviour, are accountable to the appropriators or are the appropriators' (Ostrom, 1990, p. 90).
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> 'Appropriators who violate operational rules . . . [are] assessed graduated sanctions . . . by other appropriators, by officials accountable to these appropriators, or by both' (Ostrom, 1990, p. 90).
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> There are effective mechanisms for resolving conflicts between parties, and arrangements for discussing problems (Ostrom, 1990; Wade, 1988).

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[1] My fieldwork, 1993; see also Gaul (1994), Jewitt (1996), Kelkar and Nathan (1991).

[2] See Agarwal (1992), Brara (1987) and Sarin and Khanna (1993).

The first condition is violated by excluding women from the process of framing and modifying rules, and by framing rules that are unfair to women and resented by them. The second and third conditions are violated in that (i) men who monitor formally are usually not accountable to female appropriators, (ii) women who monitor informally are often not accountable to the formal committees, and (iii) women as appropriators or monitors are excluded from decisions on sanctions imposed by the formal committees. The fourth condition is violated where women are excluded from conflict resolution discussions.

It would be worth examining to what extent failed or less successful cases of community forest management can be explained by their neglect of a significant category of users, viz. women; or to what extent cases deemed successful rest on women's informal protection efforts.

Let us now consider how gender differences can affect group formation and sustainability. A variety of factors could impinge on this, such as prior experience of cooperation, relations of trust and reciprocity, moral norms and values, attitudes toward cooperation, and concern for conservation. Are there gender differences on these counts that would improve prospects of group formation and sustainability with women's greater involvement? Indeed, might women's groups succeed where men's fail? The next two sections examine these questions.

2. Group formation and sustainability

A prior history of successful cooperation as well as relations of trust and reciprocity are found to facilitate subsequent collective functioning.[1] The overall density of social ties in a group can also improve its prospects for collective action (Marwell and Oliver, 1988). Gender differences in the nature and history of prior cooperation, and in interdependencies, may thus impinge on the formation and functioning of environmental groups.

Three types of gender differences can prove relevant here:

(*i*) in the networks that men and women constitute, predicated on social norms that separate and circumscribe male and female domains;

(*ii*) in women's material circumstances, which are typically more restricted than men's. This makes them much more dependent on localised networks and everyday forms of cooperation, and increases the cost they may incur from non-cooperation; and

(*iii*) in how women and men are positioned within the local economic and social hierarchy, which could make for less divisiveness and greater group homogeneity among women, and thus enhance prospects of cooperation among them.

The first two aspects are discussed below and the third subsequently.

2.1 Social networking: women's everyday forms of cooperation[2]

The form that social networks take, and the degree of dependence on them, vary by gender. Consider first the form. In many societies, the social norms that define gender roles place certain types of networks more within women's domain. In South Asia, for example, women are often the main actors in complex gift-exchanges (Elgar, 1960;

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[1] See, Seabright (1997A), Baland and Platteau (1996) and White and Runge (1994).

[2] Within an expanding literature on `social capital', social networks often get lumped together with a variety of other dimensions, including social norms, trust, etc. Here I am focusing particularly on the one element. See Coleman (1988) and Putnam (1993) for formulations on the concept of social capital that set off the current debate, and Harriss and de Renzio (1997) for a useful untangling of its different usages within the debate.

Sharma, 1980; Vatuk, 1981), and in some communities also in forging marriage-alliances (Sharma, 1980; Minturn, 1993). Differences arise too from the gender division of labour, both domestic and extra-domestic. For instance, the main crop-cultivation tasks that rural women in South Asia perform—such as transplanting, weeding, and harvesting—are all group tasks that are still done in large part manually and require peak labour inputs, whereas many of the tasks that are primarily in the male domain, such as ploughing, irrigation and threshing, either need fewer persons or have been increasingly mechanised (Agarwal, 1984; International Rice Research Institute, 1985). Traditionally, in many regions, agricultural group tasks were often done cooperatively through labour exchange systems. In several parts of India, such as the UP hills and Andhra Pradesh, such systems still survive among women, but are rarer among men (my field visits, 1998–99). The greater shift of men than women to non-farm activities (Agarwal, 1998A), also underlies these gender differences.

Secondly, women have a greater need to build up social capital through localised networks, since women's avenues for accumulating economic resources and their physical mobility are typically much more restricted than men's. They also have a greater need to sustain these networks, given their fewer exit options and lesser intra-household bargaining power. This dependence on networks is all the greater among poor households. Ethnographic evidence illustrates these aspects well. For instance, it is observed that in the absence of substantial assets or financial resources in their control, 'friendships among women are . . . often cemented by small acts of cooperation and mutual aid' (Sharma, 1980, p. 190; see also White, 1992). This may involve small loans of money, but more commonly it involves non-monetary help, such as shopping for another woman who has to observe stricter seclusion norms; sharing surplus home produce; helping to cook for guests during weddings and birth ceremonies; lending utensils to one another; and so on. Indeed, a critical element in the coping strategies of poor families during seasonal food shortages or drought is the borrowing of small amounts of food and other items by women, within a network of families (Agarwal, 1990). More generally, as Sharma (1980, p. 190) observes: 'women friends, kin, or neighbours characteristically cooperate in domestic and ritual matters'. In many rural cultures, this everyday accumulation of social capital falls especially in the domain of women, while market linkages are more typical among men.

In addition, women seek to extend kinship and ritual ties to deal with their vulnerability after marriage, since most leave their natal homes (and often their natal villages) on marriage. Again, ethnographies that describe women's networks in rural South Asia illustrate this well.[1] For instance, where women's role as matchmakers is important they often use this role to maintain and extend social networks with kin and non-kin, both within a village and between villages. When marriages are in the village and/or with close-kin, maintaining kinship networks is relatively easy. But even where in-village marriages are forbidden (as in much of north-west India), or uncommon in practice, women often seek to recreate natal village ties by arranging the marriages of male affines with female cousins, sisters or friends located there (Minturn, 1993). Of the women interviewed by Minturn (1993) in Khalapur village (UP, north-west India), 66% had one or more sisters, cousins or other relations married into their marital village.

Women also establish fictive or ritual kinship ties by extending kinship or affinal terms to all villagers, but especially to the women they meet in everyday activities; or by ritualistically

[1] For a detailed mapping of post-marital residence practices by regions and communities in South Asia, see Agarwal (1994A).

adopting someone as a sibling (Sharma, 1980, p. 186; Minturn, 1993). Although such ties are not confined to women, some forms, such as extending kinship terms to other women in daily work interactions, are more common among women (Sharma, 1980). Women also need to form ritual ties much more than men do. Minturn (1993, p. 61) found that 24% of the women in Rajput families had a ritual sister, and this incidence was significantly greater if women lacked blood relations in the village, suggesting that social circumstance and not just emotional closeness dictated the practice.

These complex networks of informal cooperation among women within neighbourhood clusters, work clusters, or at the village level, can be important sources of solidarity for organised collective action. Hart (1991) found that, in rural Malaysia, solidarity among women agricultural labourers, which enabled them to challenge the landlords, was a function not only of their work context but also their extra-work networks:

> For these women the [wage work] share group was not only a mechanism of labour organisation, but also an important day-to-day source of material and emotional support. Most of these women did not have kin ties in the village . . . When they were not engaged in field labour or in house-bound domestic work, these women could generally be found gathered at the home of a group member and chatting while they grated coconut or chopped onions. It was also quite common for women in the groups to lend one another small amounts of money. *These daily practices were both informed by and reinforced strong ideas of solidarity*. (Hart, 1991, p. 107, emphasis mine)

Similarly, during my field visit in the UP hills in 1993, I found that cooperation around forest protection through forming patrol groups was strengthened by the multiple intersecting connections that grew out of women's other group activities, such as collectively purchasing and renting out utensils at weddings and so building a group fund, organising women's sewing classes, and so on.

Several grassroots activists whom I interviewed in September 1998 in the UP hills also emphasised the importance of the traditional labour exchange systems (*palta*) for promoting new forms of collective action. Champa, a grassroots worker from an NGO in the UP hills, put it emphatically:

> In my 15 years of experience of working with women, I can say confidently that where there is a *palta* system it helps greatly in forming a *sangathan* [group]. In fact a *sangathan* can be built on the back of the *palta* system.
>
> For example when a crèche was set up in Rual village and there was need to build a room, 28 women contributed labour to build it. All were part of the *palta* system. *Palta* is integrally linked with women's lives and livelihoods: they exchange labour for manuring the field, for harvesting, for building homes, for fetching wood at weddings, for cooking on major festive occasions in any household, and so on.
>
> *Author*: Do men also have *palta*?
>
> *Champa*: Yes, as in land levelling, building houses, cutting wood, and organising religious functions. But these activities are more occasional. For women, *palta* is integrated into their daily existence. Also now with male out-migration, the system is mostly sustained through women.

Again, in Nepal, Pandey (1990, pp. 27–8) found that the women cooperating across four villages to protect a common forest had had a long prior experience of cooperation: 'Working together around a common interest [is] not new to them . . . The way they have been protecting the forest is also compatible with the collaborative way they have undertaken other activities.'

Women's interdependence also facilitates group functioning and conflict resolution. In Andhra Pradesh (south India), for instance, when I asked a women's group doing collective farming whether there was any difference in conflict resolution between men's and women's groups, I was told:

> Men have bigger fights; they get physical. We women may shout but finally we resolve the conflict before getting up from the meeting.
>
> *Author*: Why is there this difference?
>
> *Women's group*: Men get angry easily and walk away. They say: Why should we sit here. If we get up and leave, the problem too will go away. Women reflect more. *They say: even if I am fighting with her now, I have to go together with her for weeding or water, or if I don't have flour in the house, I will have to borrow from her. This is always at the back of our minds.* We also understand each other's problems and mistakes better. (My emphasis)

It is not of course the case that women alone (or even to greater extent than men) have social networks that feed into collective action. But two points are notable. One, women's networks are often distinct from men's. Given that these networks also provide a foundation for women's solidarity, it is likely that women's forest protection groups could successfully be built on such networks. Two, since rural women's dependence on these networks for everyday survival is often greater than men's, and given their intersecting nature, women might also feel more compelled than men do to resolve conflicts faster, and thus might better sustain collective action. In addition, they might be less tempted to free ride, since doing so would reduce their ability to obtain cooperation from fellow women on other counts, and the overall cost of sanctions would be greater for women then men because women usually have fewer alternatives.

2.2 Group homogeneity

We might also expect greater cooperation among women because of lower divisiveness. Although group homogeneity is not a necessary condition for successful cooperation (and there could be instances where heterogeneity might help),[1] overall socio-economic homogeneity is known to facilitate cooperation in many contexts.[2] The absence of homogeneity could take various forms: economic inequality (e.g., class differences), social inequality (e.g., caste hierarchies), ethnic or religious differences, and so on. Of course, a community can be relatively equal in economic terms while being heterogeneous in other respects (Seabright, 1997B), but both differences can be sources of conflict. Might we expect less class and social divisiveness among women, even in communities where *households* are so differentiated? There are several reasons to expect this.

First, in relation to economic inequality, women's class position is much more precarious than that of men: a well-placed marriage can raise it, widowhood, desertion or divorce can lower it. Hence, to the extent that women, even of propertied households, do not own property themselves, they face a significant risk of poverty. In northern South Asia, it is not uncommon to find rural women married into rich households being left destitute on widowhood or divorce (Agarwal, 1994A).

Secondly, although women of rich households gain from their household's class positions in overall living standards and social status, there are also significant commonalities that cut across derived class privilege (or deprivation), such as all women's responsibility for housework and childcare (even if not all women perform such labour themselves—the better-off can hire helpers). It is notable too that if a household becomes wealthier, women do not always gain. In the Indian Punjab, green revolution prosperity led many well-off rural families to invest in tractors, but the women continued to cook on smoky stoves; and while hired labour replaced male family labour on the farm, family women often had to cook for such labourers where meals were part of the labour contract (Agarwal, 1984). Moreover, certain tasks, such as firewood collection for home needs, are often undertaken even by women of relatively better-off households, so that shortages affect women across a wide socio-economic spectrum, giving them a common stake in action that enhances fuel and fodder availability.

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[1] See Baland and Platteau (1996) and Marwell and Oliver (1988).

[2] See, for example, Bardhan (1993), Malhotra *et al.* (1990) and Baland and Platteau's (1996, p. 344) summing up of empirical evidence on successful collective action among village communities.

Thirdly, women are usually less connected than men to local power structures; this would increase the prospects for cooperation. In Hart's study (1991, p. 115), women agricultural labourers in Malaysia were better able to organise collectively and challenge the landlords than male agricultural labourers, because women had a more 'peripheral relationship with formal power structures' and were not enmeshed like their husbands in patronage relationships.[1] This social (or political) distance also impinges on sources of divisiveness other than class, such as caste, ethnicity and religion. In the highly caste-divided villages of Gujarat where the Self-Employed Women's Association (SEWA) is active, within a year of their forming groups poor women were able to overcome initial conflicts and discord predicated on caste politics. Renana Jhabvala, from many years of experience with SEWA, notes: 'most women were not keen to keep up such divisions, despite pressure from the men of their community' (personal communication, 1998). In other words, women appeared better able to overcome or less committed to maintaining social divisions. It is also possible that where women typically marry outside the village (as in north India), women's networks, forged and maintained outside their natal village, might be freer from some of the animosities created by family feuds that men's networks have to contend with (as men continue to live in their birth village after marriage).

From the above discussion we get the following broad picture. First, women's social support networks are often distinct from men's and could provide an important (and often ignored) basis for organising environmental collective action. Secondly, women in societies where they are especially dependent on social relationships with other women and have fewer exit options might also sustain such networks better. And thirdly, the often greater permeability of women's networks across class and social lines, and women's typically greater distance from local power nexuses, could make for better prospects for group action among women than among men in heterogeneous communities.

Are there also gender differences in values and motivations that might impinge on prospects of environmental collective action? On this count, the picture is hazier.

3. Values and motivations

There is an emerging recognition that moral norms, social values of empathy, trust, etc. play a central enabling role in enhancing cooperation and undercutting tendencies to free ride. Baland and Platteau (1996, p. 125) sum up the implications of moral norms and values as follows:

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[1] See also, Goetz (1990), who found that women field-level bureaucrats in Bangladesh were less susceptible than their male colleagues to being co-opted by the local male élite, since women were excluded from most male networks. They were also much more sympathetic to the constraints that village women faced in micro-credit programmes.

> The prevalence of moral norms in a society tends to favour the emergence of co-operation through better realization of the conditions [for cooperation] . . . Thus, when such norms are well established and effectively sustained through appropriate secondary socialization processes, people tend (a) to adopt the others' viewpoint when making decisions that may harm others' interests and to feel internally rewarded when behaving in other-regarding ways; (b) to be confident that others will abide by the same code of good behaviour as themselves; (c) to cling to this code even when they had unpleasant experiences in which they were 'suckers'; (d) to feel guilty after they have (perhaps mistakenly) deviated from the moral rule; and (e) to feel vengeful and willing to punish detectable free-riders.[1]

However, there has been little exploration of possible gender differences in values and motivations as they impinge on possibilities of environmental cooperation. For instance, compared with men, are women more relational (as against individualistic), more altruistic (as against self-interested), or more conservationist? If they are, this would impinge on the relative sustainability and success of women's and men's groups for environmental management. While these questions cannot be examined here in depth, the discussion below flags some aspects that appear worth pursuing.

3.1 Are women likely to be more cooperative than men?

A number of scholars of developmental psychology have suggested that men and women differ in their attitude to relationships and in their moral codes and moral reasoning. Chodorow (1974, 1978), for instance, argues that 'in any given society, feminine personality comes to define itself in relation and connection to other people more than masculine personality does' (1974, p. 44); and that 'women grow up and remain more connected to others' (1978, p. 177). Gilligan (1982, pp. 160, 163), based on a sample of adults in the United States, similarly argues that in women's descriptions of self, 'identity is defined in a context of relationship' and morality is seen 'as arising from the experience of connection and conceived as a problem of inclusion', while for men (situated similarly to the women in occupational and marital terms) 'instead of attachment, individual achievement rivets the . . . imagination'. Miller (1976, quoted in Gilligan, p. 169) reinforces this view: 'Women's sense of self becomes very much organised around being able to make, and then to maintain, affiliations and relationships.' Several other feminist writers also suggest that empathy is an important characteristic of women's interactions,[2] or that women have less 'separative' selves than men.[3]

More recent studies have refuted some of the assertions (e.g., Gilligan's) on gender differences in moral codes and reasoning.[4] However, the issue of whether women are more relational and cooperative than men still has relevance, since this difference can arise equally from context-specific need (as outlined in the previous section). Even authors that emphasise psychological differences between women and men, locate the difference in social rather than biological factors. Chowdorow (1974, p. 43), for instance, emphasises the role played by the gender division of labour in personality development, gender differences arising from 'the fact that women, universally, are largely responsible for early child care and for (at least) later female socialization'.[1] Others focus on cultural and structural factors (Markus and Kitayama, 1991; England, 1989). Yet others argue that women are simply socialised into being more nurturing and self-sacrificing and acting more altruistically than men (e.g., Papanek, 1990; Sharma, 1980; White, 1992).

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[1] See also Dasgupta (1993), Elster (1989) and Fukuyama (1995).

[2] See references in Markus and Kitayama (1991).

[3] See literature reviewed in England (1989).

[4] See, for example, discussion in Valian (1998, p. 340 n.2).

Both issues—whether women are more relational, caring, or altruistic than men, and where one would locate any such difference within the old nature-nurture spectrum—open up an area worthy of careful probing in relation to collective action. Clearly, if more rigorous empirical testing were to establish gender differences in values of caring, sharing and empathy, we would expect women to be more likely than men to enter into collectivities and cement relationships within them, and thus less likely to free ride. Equally, a better understanding of factors underlying such differences could illuminate why cooperation succeeds or fails in particular contexts.

Behavioural analysis based on experimental testing among control groups can also throw some light on gender differences in cooperation. Most such analysis is ungendered, but there are exceptions. For instance, Frank *et al.* (1993) set up a series of Prisoner's Dilemma games among university students studying economics and other disciplines in the United States. In a sample of 207 games (with 414 choices between cooperation and defection), they find that, other factors being the same, 'the probability of a male defecting is almost 0·24 higher than the corresponding probability for a female' (p. 165).[2]

Some other studies also find that women tend to be more cooperative than men (e.g., Stockard *et al.*, 1988; Eckel and Grossman, 1998). However, there are also studies that indicate the opposite, or give inconclusive results.[3] These differences in results stem at least in part from differences in methodologies and approaches, as well as in the contexts studied.

Recent research which seeks to delineate the effect of context on cooperation, especially the effect of variations in the gender composition of the group, are of particular relevance in the present discussion. Sell (1997), for instance, using game theory and interaction theories, examines how factors such as the group's gender composition might affect cooperation in public goods settings, again using undergraduates in American universities as subjects. She finds that women tend to cooperate more in all-female groups than in groups where the gender composition is not known or where they are a minority in a mixed group. Men, by contrast, contribute more when they are a minority in a mixed group than they do in all-male groups. She explains this in terms of the actors' expectations of the degree of influence they can command within the group. Women cooperate at higher rates in all-female groups since they feel more empowered with other low status actors than when they are a minority in a mixed-gender group. Men cooperate more in a largely female group again because they expect that here they can better influence group decisions than if other actors are equally powerful, as in an all-male group. In addition, Eckel and Grossman (1998), on the basis of ultimate games conducted by them, report that women display solidarity with female partners, and that female dyads rarely fail to reach an agreement, in sharp contrast to what happens in all-male or mixed dyads.

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[1] This, she argues, affects the personality development of females and males differently: female children can bond with same-sex persons (mothers), and so retain traits of emotional closeness and empathy; male children needing to separate themselves from their mothers for defining themselves as male, become more separative and individuated. This is a highly simplified rendering of a complex argument, for which see Chodorow (1978). For an interesting discussion on aspects of Chodorow's argument, see also Nussbaum (1995).

[2] In addition, the probability of an economics major defecting was almost 0.17 higher than the corresponding probability for a non-major.

[3] See especially, Eckel and Grossman (1998) for a useful listing of references on these different results.

So far, the field is perhaps too new to take these results as conclusive, but they are certainly indicative, and worth testing in non-Western cultural contexts. In particular, these studies of group composition and cooperation provide interesting pointers and tend to bear out some field observations (for instance, that women co-operate better in all-women groups) of CFGs in South Asia (as discussed further below).

A somewhat different set of issues arises when we shift from arguments about gender differences in *caring for others* to gender differences in *caring for nature*, as below.

3.2 Are women more conservationist than men?

A growing body of literature falling under the broad banner of 'ecofeminism' argues that women are closer to nature than men and therefore likely to be more conservationist.[1] There are two variants of the argument. One is that women are in fact closer to nature than men and that this closeness can affirm more nurturing and caring values both between humans and between humans and 'non-human' nature. Some trace this closeness to historical and cultural factors, others mainly to women's biology.

The other variant of the argument is that women are *identified* as closer to nature and men as closer to culture. Nature is seen as inferior to culture, hence women are seen as inferior to men. The domination of women and the exploitation of nature are seen as interrelated and as having historically emerged together from a common world view. This presumed link between women and nature is seen to give women a special motivation in ending the domination of nature, and by implication their own subordination to men.[2]

Elsewhere (Agarwal, 1992, 1998B) I have disagreed with the ecofeminist position on several counts.[3] Here it suffices to touch on aspects relevant to the present discussion. Arguments tracing a universally caring attitude of women toward nature fail to convince in the face of varying behaviour across classes, regions and contexts. Urban women who use little firewood or fodder, and women from rich peasant households who can obtain much of what they need from family land, have a very different dependence on and hence relationship with communal forests than do poor rural women. Among the latter, on the one hand, evidence shows that many of their methods of collecting typically do not destroy the environment—firewood for home use, for instance, is usually gathered in the form of twigs and fallen branches, which does not harm the tree.[4] On the other hand, there is also evidence of women cutting down green branches, when there is a serious conflict between conservation and survival. As a woman in the UP hills said to me in 1993: 'Of course it pains me to cut a green branch, but it also pains me when my children's stomachs hurt if there is no firewood to cook them a meal.' In the face of acute shortage, therefore, the very values of nurture and caring for others, especially children, might lead women not toward conservation but its opposite.

Property rights and institutional arrangements also impinge on what is protected and what exploited. Women might be strongly protective toward their community forest, for instance, while drawing on a State protected forest in the vicinity.[5] Basically, there is little to suggest a biologically rooted connection between women and nature, or even of a culturally specific one that transcends ecological location and survival needs.

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[1] For a detailed discussion on this literature, see Agarwal (1992, 1998B).

[2] These arguments are fairly characteristic of ecofeminist formulations, even given differences among ecofeminists on other counts (for details, see Agarwal, 1992, 1998B).

[3] For critiques of ecofeminism from various other viewpoints, see especially Biehl (1991), Davion (1994), Jackson (1993), Li (1993), Nanda (1991), Sinha *et al.* (1997) and Zimmerman (1987).

[4] In the 1980s, an estimated 75% of firewood used as domestic fuel in India's rural households was so gathered (Agarwal, 1986).

[5] My field visits in the UP hills in 1993 and 1998; also Sinha *et al.* (1997).

The notion that because women are ideologically constructed as closer to nature and men to culture, they have a particular stake in ending the subordination of nature (and so bringing about their own emancipation), is equally problematic (as detailed in Agarwal, 1992, 1998B). The origins of the subordination of women and of nature cannot be seen as overlapping historically, nor rooted solely or mainly in ideology.[1] Moreover, the dimensions of women's subordination are many and cannot all (or even in most part) be linked with the processes of environmental degradation. Most importantly, the experience of environmental management clearly shows that, depending on context, *both* women and men have a stake in environmental protection. The nature of the stake can vary, however, and it is this rather than some natural proclivity that could lead women to be more conservationist than men.

Gender differences in attitudes to conservation can stem especially from (i) the gender division of economic resources, and (ii) the gender division of labour. The former affects the *extent* of women's dependence on non-privatised local natural resources, and the latter affects the *nature* of that dependence. Rural women are much more dependent than men on communal resources for subsistence needs, since they have much less access to private property resources: land, employment, productive assets, etc. (Agarwal, 1994A; Bardhan, 1977). They also have much less access to markets, to the cash economy and, in societies with strict female seclusion, even to the marketplace (Agarwal, 1994A). This, and the constraints on women's physical mobility due to domestic responsibilities and safety considerations, also increase their dependence on local availability.

To this is added the nature of women's dependence on communal resources which, as noted earlier, is predicated on their specific responsibilities within the household. Rural women, for example, tend to be more affected by and concerned with scarcities of fuelwood and fodder, which they are mainly responsible for collecting, and men with scarcities of small timber for implements and house repairs, etc. There is, however, a critical difference between these two concerns: while women need to collect firewood frequently, often daily, small timber needs are more sporadic. As women of some informal forest protection groups in the villages of Gujarat told me in 1995: 'Men can afford to wait for a while because their main concern is timber, but women need fuelwood daily.' Prasal *et al.* (1987, p. 25), based on their four village study in Nepal, similarly note:

> Women often seem to have a more responsible attitude towards the forest than men because it is more important in their daily lives. They can be motivated by the thought of the additional hardship they and their children would face as a result of depleted forest reserves.

All these factors, women's greater dependence on local commons, the everyday nature of that dependence, and their primary responsibility for children, would make their stake in forest protection more immediate, and could translate into their being more conservationist. The one significant caveat, as already noted, is a situation of serious scarcity when immediate survival concerns might dominate long-term interests. It is this that appears to explain the high incidence noted earlier of women breaking the closure rules made by male-managed CFGs in some areas.

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[1] Also, concepts of nature, culture, gender, and so on, are historically and socially constructed and vary across and within cultures and over time (MacCormack and Strathern, 1980).

4. Forms of women's involvement and gendered constraints

We have noted several reasons why women's greater involvement in CFGs could make for more successful group formation and functioning. However, this involvement is unlikely to emerge automatically since having a stake in the protection of natural resources does not appear to be a sufficient condition for catalysing women's environmental action. Although, as noted, there are cases of women forming protection groups even when men's groups exist, there are also many cases where despite acute shortages of firewood and fodder women take no collective action.[1] In other words, there can be a disjunction between women's interests in environmental conservation and their ability to act on those interests. Even if sufficiently motivated, women face gender-specific constraints in initiating collective action, or in exercising what Sen (1985) terms 'agency-freedom'.[2] As described below, women are able to participate in certain types of forest protection activism, but a range of factors typically restrict their involvement in the formal CFGs.

4.1 Forms of involvement

Except in the small number of cases (discussed in Section 4.3) where external intervention has led to the formation of all-women CFGs or women's entry into formal mixed CFGs, women's forest-related activism has typically taken two broad forms: self-initiated informal protection groups and agitational collective action. I define formal groups as those which are clearly delineated and have the authority, derived either through the State or the village community, to make and enforce rules. Informal groups lack both clear delineation and such authority.[3]

Women sometimes form informal forest protection groups when they find that men's groups are ineffective or non-existent.[4] Usually these are patrolling groups. As detailed in Section 1.3, women's informal patrolling improves protection. In fact, the success of many formal protection initiatives is found to depend on women's informal input.

In many ways, women's forest protection groups appear to be extensions of their everyday forms of cooperation and social networking, and women's absence from men's formal protection groups tends to reflect the power of gender exclusion that characterises many of men's other networks. Some argue that informality provides the advantage of flexibility, but, as noted earlier, when the demarcation of formality and informality is along gender lines, with formality being linked with authority and informality being divested of authority, this systematically disadvantages women and can reduce institutional efficiency in significant ways.

Women are also noticeably present in what I term 'agitational' collective action, as against 'cooperative' collective action. The former is sporadic, situation-specific and can involve extra-local mobilisation for calling attention to a given local situation, or for protesting the action of some extra-local authority, usually the State. While this too requires a degree of cooperation, what I call 'cooperative' collective action is that which is continuous and requires a regular process of monitoring and decision-making in relation to local natural resources. Sometimes group action can take both forms.

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[1] For further discussion on this, see Agarwal (1997A).

[2] Sen (1985, p. 203) defines `agency-freedom' as that which 'the person is free to do and achieve in pursuit of whatever goals or values he or she regards as important'.

[3] A given group may of course have formal and informal components in its functioning, but my distinction relates not to the group's forms of functioning but to its recognized legitimacy and authority. See also Stewart (1996), who characterises formal groups as clearly delineated and subject to agreed rules of membership and operation, and informal groups as unclear, sporadic and varying. In the above discussion, however, the presence or absence of formally conferred authority is also of central importance.

[4] Personal observation in Gujarat and the UP hills. See also, Sharma and Sinha (1993) and Viegas and Menon (1991).

The dearth of women in formal groups contrasts with their often significant presence in agitational collective action catalysed by the same groups. For instance, rural Indian women have been highly visible in protest demonstrations held by forest protection movements such as Chipko in the UP hills, or by anti-large-dam movements such as the Narmada Bachao Andolan in central India. This is in line with women's substantial presence in agitations within peasant movements, such as the Telangana and Tebhaga movements in India in the 1940s (Agarwal, 1994B). Observers also comment on the spontaneous nature of women's agitational protests in mass movements; yet women rarely find entry into the regular decision-making forums of the organisations spearheading these movements.[1]

In local resource management, agitational collective action can complement but not substitute for institutions that monitor resource flows and the regeneration of stocks. Women's participation would thus be necessary in both. At a minimum, such participation implies group membership and is linked with rules of entry. But effective participation also requires attending meetings, speaking out, and having one's opinions carry weight in the decisions made. In other words, there can be *degrees of participation* in collective action.

To deal with the gender-related efficiencies and many (if not all) of the equity disadvantages outlined in Section 1 of this paper, it appears necessary that women participate actively in the ways described. As the situation stands, even where the entry rules for the formal groups are non-restrictive, women's presence and participation is limited. What obstructs them?

4.2 Constraints

Factors constraining women's participation in formal institutions of environmental management could broadly be classified under the following heads: rules, norms, perceptions, entrenched territorial claims, the household's economic and social endowments (class, caste, etc.), and women's individual economic endowments and personal attributes. These factors are detailed in Agarwal (2000). Here some illustrative examples are provided from South Asia.

First, rules of membership in the CFG's general body and executive committee made by the state governments constrain women in so far as the rules allow CFG membership to only one person per household, and (given social norms) this person is usually the male head of household. Women's lack of awareness about rules or of changes in them also restrict their participation (Raju, 1997; Moffatt, 1998).

Secondly, social norms that define which tasks men and women should perform, how the genders should interact in public, the territorial gendering of space, and so on, are significant constraints. For instance, women's primary responsibility for domestic work, in addition to farm tasks, limits their ability to attend meetings held when they are busy with domestic chores, cattle care, etc. They can also rarely attend long meetings, especially if they have young children, unless spouses, kin or friends substitute for them. The meetings called by male-managed groups seldom take these constraints into account.[2]

In this regard, informal all-women's groups are more conducive to women's participation, since meeting times can be fixed according to women's convenience and domestic constraints. Moreover, a more child-friendly atmosphere at meetings enables young mothers to bring their children along. Such factors might explain why women are more able to participate in demonstrations and protests that characterise agitational collective action: these usually require a more concentrated and occasional commitment of time than required by protection groups or committees that hold regular meetings at inconvenient times. Domestic work also reduces women's ability to join patrol groups on a regular basis.

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[1] For the mentioned peasant movements, see Lalita *et al.* (1989) and Custers (1987); for the Chipko movement, see Sharma *et al.* (1987); and for other mass movements, see I. Sen (1990).

[2] Mansingh (1991), Britt (1993), and personal observation during fieldwork in several areas in India.

Another way in which social norms can constrain women is by defining what is acceptable female behaviour. In large parts of South Asia, for example, female seclusion discourages women's participation outside the home. Sometimes this involves veiling; more often there is strong disapproval of women's presence in public spaces with substantial male attendance. Also widespread is the subtle specification of appropriate female behaviour and forms of public interaction. This manifests itself in various ways, including women sitting on one side or at the back of the meeting space where they are less visible and audible. Moreover, in cultures where appropriate feminine behaviour is defined in terms of soft speech and deference, women tend not to speak up at meetings. Norms of respectful behaviour toward senior male family members also prevent women from speaking up or opposing the men. Relatedly, women face the risk of intra-household conflict, if spouses think women are transcending their socially accepted roles. In many regions, men markedly disapprove of women being members, seeing this as 'a male role'. Village women also note that the committee meetings are considered to be only for men, whose 'opinions and consent are taken as representative of the whole family' (Britt, 1993, p. 148). In the collective action literature, the positive side of social norms is usually emphasised. From a woman's viewpoint, these examples reflect the 'dark side' of many social norms.[1]

Thirdly, male perceptions about women's appropriate roles and abilities, which are often at variance with women's real abilities, serve as a demand constraint to the inclusion of women in CFGs. Women are often perceived as being less capable than men, or their participation in public is considered inappropriate or unnecessary. Some illustrative responses are: 'We men go [to meetings]. Why do women need to go?' (men to author, Nepalese village, 1998); 'Women can't make any helpful suggestions' (man to author, village in Orissa, India, 1998). Such perceptions also underlie a disregard of women's opinions at meetings. As a woman *van panchayat* member put it: 'I went to three or four meetings . . . No one ever listened to my suggestions . . . They were uninterested' (cited in Britt, 1993, p. 146). There are similar complaints by women about JFM functioning (Roy *et al.*, 1993). As a result, many women join the ranks of the 'discouraged drop-outs'.

Unfavourable perceptions about women's abilities are often shared by forest officials. In India's JFM programme, there are very few female forest officials (Venkateshwaran, 1992), and male officials, as noted, rarely consult women when preparing micro-plans for forest development. Similar biases are observed in Nepal (Pandey, 1990). Assumptions about the reliability of women's observations can also colour official responses. Women in some of West Bengal's JFM initiatives, for instance, complain that the male forest officers 'always crosscheck with the men to verify the truth of [women's] words. And if ever there is any conflict or contradiction between the women and the men, the foresters always settle the disputes in favour of the men' (Roy *et al.*, 1993, pp. 15–16).

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[1] See also Putzel (1997) for an interesting discussion on the 'dark side' of some social networks.

Fourthly, where initially the CFG is constituted only of men, they are often reluctant to give up their 'territorial claims' by admitting women. In a Karnataka village (south India), for instance, when I asked some young men in the CFG their views on the new membership rules which were more women-inclusive, they told me: 'Women have DWARCA, they have a savings group, why don't you leave the CFGs to us men?' (my field interview, 1998).[1] Other authors have also noted that it is easier for women to gain entry if they join the group from the very start than when men's interests are already entrenched (Mansingh, 1991).

Fifthly, the economic endowments and social position (e.g., caste) of the household to which women belong is likely to impinge on the voice women have, where the CFG is constituted of heterogeneous households. In multicaste villages, many of the women who do join CFGs tend to belong to upper-caste and landed households.[2]

Sixthly, women's own economic endowments (e.g., asset ownership) and personal attributes (educational level, self-confidence, leadership qualities, etc.) similarly affect their degree of participation. Literacy levels often determine which women are nominated to JFM executive committees where the rules make women's inclusion mandatory. In general, women's lower average level of education, relative to men's, not only colours perceptions about women's abilities but also affects their actual ability to gain information on rules, to check the accuracy of minutes on the decisions made, and so on.

The relative strength of these constraints need empirical testing. Some will also vary by region. Social norms restricting women's mobility, for instance, are less strong in southern and north-eastern South Asia, and also among tribal and hill communities, than elsewhere. However, the little weight given to women's opinions in mixed forums, or assumptions that women's interests are well represented by male household heads, are part of a wider cultural construction of gender, and of social perceptions about women's capabilities and place in society, from which most communities are not immune.

How these constraints might be overcome cannot be discussed here in any depth (for this, see Agarwal, 2000). But some pointers regarding significant enabling factors are provided by cases where women's involvement in formal committees is high.

4.3 Facilitating participation

Within the general picture of women's virtual absence from formal CFG membership there are exceptions, as noted earlier. Under JFM in India, for instance, in some CFGs a third or half of the members are women.[3] There are also all-women CFGs formed by NGOs, donors or forest officials, typically in areas of high male outmigration, or where men are not interested in forming a CFG.

At one level, all-women CFGs are conducive to women's participation. To begin with, in such groups village women are found to be more comfortable and vocal and feel they have a greater chance of being heard than in mixed ones. While this can prove especially important in regions of high female seclusion, it is by no means confined to seclusion contexts. A study of Scandinavian women politicians reported the same (Dahlerup, 1988). This is also in keeping with the earlier-noted findings in behavioural experiments that cooperation among women is greater in groups composed only of women, than in mixed groups. Moreover, all-women groups could be built more easily on the foundations of women's pre-existing social networks and relationships of trust and reciprocity, discussed earlier. The formation of all-women's CFGs thus deserves exploring on a larger scale than attempted hitherto.

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[1] DWACRA: Development of Women and Children in the Rural Areas, a poverty alleviation programme of the Government of India.

[2] Personal observation on my field visits during 1998–99; see also Dahal (1994) for Nepal.

[3] See, for example, Narain (1994), Viegas and Menon (1991), Mukerjee and Roy (1993) and Adhikari *et al.* (1991).

However, the majority of CFGs would still be of mixed gender composition. Enhancing women's participation in such CFGs would require a particular effort to overcome the above-mentioned constraints. As elaborated in Agarwal (2000), these constraints are not immutable and much depends on building up women's bargaining power *vis-à-vis* the State, the community, and the family.

Among the factors that appear especially important in enhancing women's bargaining power is the support of local gender-progressive NGOs.[1] Pressure from such NGOs and donors was an important factor that led some state governments to change CFG membership rules to be more women inclusive (e.g., from one person per household to one man and one woman per household). Some NGOs have also directly addressed women's concerns at the community level within mixed CFGs. Cases in point are a number of Gujarat-based NGOs (none of which work exclusively with women) that brought CFG attention to the hardships women were facing in fuelwood collection owing to the rule banning forest entry. This led male CFG members to initiate cut-back operations that yielded substantial fuelwood for distribution to member households. Some of these NGOs have also significantly increased women's membership in CFG general bodies, for example, by insisting on 50% women when the CFG is first formed. Similarly, they have sought to increase women's voice in meetings by repeatedly soliciting their opinions, and ensuring that their concerns are reflected in the decisions (my field visits, 1995, 1999).

These mediated interventions can, however, go only part of the way towards enhancing women's bargaining power for bringing about changes in rules, norms, perceptions, etc. Long-term change is likely to need an enhancement in women's own self-confidence, assertiveness and group strength.

Here the notion of 'critical mass' also has relevance. Women, if few in number, are often reluctant to speak up at meetings. Most feel that they cannot change procedures individually, and would be better able to represent their concerns if present in sufficient numbers.[2] Experience in Western countries bears this out. Dahlerup (1988), for instance, in her study of Scandinavian women politicians, found that, once women became a significant minority (passing a threshold of some 30% seats in Parliament or local councils), there was less stereotyping and openly exclusionary practices by the men, a less aggressive tone in discussions, a greater accommodation of family obligations in setting meeting timings, and a greater weight given to women's concerns in policy formulation. However, in a different cultural context, such as that of South Asia, a more explicit contestation of norms and perceptions by a cohesive and critical mass of women also appears necessary for enhancing their voice in mixed CFGs.

5. Conclusion

Neither households nor communities are ungendered units. The substantial literature on collective action and environmental conservation has, however, tended to treat them so. It has been argued here that a neglect of gender may seriously distort analysis and policy on collective action in general and environmental action in particular, on several counts. One, it could lead to a misevaluation of community resource management institutions from both equity and efficiency standpoints, suggesting success even where serious inequalities and inefficiencies exist on account of gender. The experience of community forestry groups in South Asia reveals women's virtual absence from their decision-making bodies, significant gender inequalities in the distribution of costs and benefits, and a range of observed or potential inefficiencies in functioning. Inefficiencies, for instance, are likely to arise from rule enforcement problems, information flow imperfections, inaccurate assessments of resource depletion, problems in catching transgressors, unsatisfactory conflict resolution, non-incorporation of women's specific knowledge of species, and non-recognition of gender differences in tree-species preferences. Some of these factors could obstruct successful cooperation even in the short term; others could affect the long-term sustainability of arrangements for communal resource management, or cause them to fall short of attaining their production potential.

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[1] For a fuller discussion on factors which have increased or are likely to increase women's participation in CFGs, see Agarwal (1997A, 2000). Here I focus on a factor which appears to be especially important.

[2] See, for example, Britt (1993), Correa (1995) and Prasal *et al.* (1987).

Two, the absence of a gender perspective would result in significant opportunities to promote effective collective action being missed, due to a failure to recognise the potential for such action specifically among women. Women often have a long history, relatively distinct from men's, of cooperative functioning within traditional social networks characterised by reciprocity and mutual dependency, especially in the rural communities of developing countries. Their dependence on such forms of social capital is often greater than men's, given women's typically lesser access to economic resources. Women also appear to be less subject to divisiveness on account of local power nexuses, or of class and social differences between their households. In addition, most rural women's greater dependence on the local environmental base for items of daily use increases their stake in the sustainability of that resource base, even though they cannot be seen as intrinsically more conservationist than men. Less obvious, but worth further probing, is whether women are typically more altruistic and cooperative than men, if not in all contexts then in particular ones.

Three, the absence of a gender analysis can obscure the gap between having a stake in environmental protection and the ability to act on it. It can also fail to note some essential differences in the ways in which men and women typically organise environmental action (usually formal among men, informal among women). In addition, it can fail to identify the constraints that women face and need to overcome for their effective involvement in the formal institutions of local resource management. These constraints include not just rules of entry, but also factors affecting participation in decision-making after entry, such as social norms defining the gender division of labour and women's appropriate roles; social perceptions about women's abilities; men's entrenched interests; the household's socio-economic endowments and associated structural inequalities; and women's own economic endowments and personal attributes.

These dimensions have implications for theory, empirical analysis and policy. Theoretically, taking account of gender would both enrich and in important ways act as a corrective to our conceptual understanding of collective action and environmental institutions. Among other things, the conditions for building successful and sustainable institutions for environmental collective action would require reformulation and/or elaboration. Empirically, it would open up new areas for exploration, especially in terms of gendered motivations and values, gender differences in constraints to environmental collective action, and appropriate institutional structures for effective environmental conservation.

In terms of policy, again, there are several challenges here. For instance, how can the constraints to women's participation in the formal groups be overcome? Can women's informal forest protection groups be vested with formal authority and also be linked in parallel terms with existing formal structures for community forest management? In so far as women's traditional social networks provide a foundation for cooperation among women, in what ways can these networks be encouraged to take up environmental action? Equally, in what ways can women's non-traditional networks that have preceded environmental concerns, namely the networks of the wider women's movement, be encouraged to promote environmental action?

This paper does not claim to be a definitive statement on the concerns and questions highlighted above. It does seek, however, to call attention to their centrality and irreducibility.

Bibliography

Acharya, M. and Bennett, L. 1981. *An Aggregate Analysis and Summary of Village Studies, The Status of Women in Nepal*, II, Part 9, Kathmandu, CEDA, Tribhuvan University

Adhikari, N., Yadav, G., Ray, S. B. and Kumar, S. 1991. Process documentation of women's involvement in forest management at Mahespur, Ranchi, pp. 118–23 in Singh, R. (ed.), *Managing the Village Commons, Proceedings of the National Workshop*, 15–16 December 1991, Indian Institute of Forest Management, Bhopal

Agarwal, B. 1984. Rural women and the HYV rice technology in India, *Economic and Political Weekly*, vol. 19, no. 13, Review of Agriculture, 31 March, A-39–A-52

Agarwal, B. 1986. *Cold Hearths and Barren Slopes: The Woodfuel Crisis in the Third World*, London, Zed Books; Delhi, Allied Publishers; Maryland, Riverdale

Agarwal, B. 1990. Social security and the family: coping with seasonality and calamity in rural India, *Journal of Peasant Studies*, vol. 17, no. 3, 341–412

Agarwal, B. 1992. The gender and environment debate: lessons from India, *Feminist Studies*, vol. 18, no. 1, 119–58

Agarwal, B. 1994A. *A Field of One's Own: gender and land rights in South Asia*, Cambridge, Cambridge University Press

Agarwal, B. 1994B. Gender, resistance, and land: interlinked struggles over resources and meanings in South Asia, *Journal of Peasant Studies*, vol. 22 no. 1, 81–125

Agarwal, B. 1997A. Environmental action, gender equity and women's participation, *Development and Change*, vol. 28, no. 1, 1–44

Agarwal, B. 1997B. 'Bargaining' and gender relations: within and beyond the household, *Feminist Economics*, vol 1, no. 5, 1–51

Agarwal, B. 1998A. Disinherited peasants, disadvantaged workers: a gender perspective on land and livelihood, *Economic and Political Weekly*, Review of Agriculture, vol 33, no 13, A2–A14

Agarwal, B. 1998B. Environmental management, equity and ecofeminism: debating India's experience, *Journal of Peasant Studies*, vol. 25, no. 4, 55–95

Agarwal, B. 2000. 'Group Functioning and Community Forestry in South Asia: A Gender Analysis and Conceptual Framework, WIDER Working Paper, World Institute for Development Economics Research, Helsinki

Agrawal, A. 1999. State formation in community spaces: control over forests in the Kumaon Himalaya, India, paper prepared for presentation at the University of California, Berkeley, Workshop on Environmental Politics, 30 April

Arul, N. J. and Poffenberger, M. 1990. FPC case studies, pp. 13–25 in Pathan, R. S., Arul, N. J. and Poffenberger, M. (eds), *Forest Protection Committees in Gujarat: Joint Management Initiative*, Working Paper no. 7, Ford Foundation, New Delhi

Baland, J. M. and Platteau, J. P. 1996. *Halting Degradation of Natural Resources: Is there a Role for Rural Communities?* Oxford, Clarendon Press

Ballabh, V. and Singh, K. 1988. 'Van (Forest) Panchayats in Uttar Pradesh Hills: A Critical Analysis', Research Paper, Institute for Rural Management, Anand

Bardhan, K. 1977. Rural employment, wages and labour markets in India—a survey of research, *Economic and Political Weekly*, vol. 12, no. 26, A-34–A-48; vol. 12, no. 27, 1062–74; vol. 12 no. 28, 1101–18

Bardhan, P. 1993. Analytics of the institutions of informal cooperation in rural development, *World Development*, vol. 21, no. 4, 633–9

Biehl, J. 1991. *Rethinking Ecofeminist Politics*, Boston, South End Press

Blumberg, R. L. 1991. Income under female vs. male control: hypotheses from a theory of gender stratification and data from the Third World, pp. 97–127 in Blumberg, R. L. (ed.), *Gender, Family and Economy: The Triple Overlap*, Newbury Park, Sage

Brara, R. 1987. 'Shifting Sands: A Study of Right in Common Pastures', Report, Institute of Development Studies, Jaipur

Briscoe, J. 1979. Energy use and social structure in a Bangladeshi Village, *Population and Development Review*, vol. 5, no. 4, 615–41

Britt, C. 1993. 'Out of the Wood? Local Institutions and Community Forest Management in two Central Himalayan Villages', draft monograph, Cornell University, Ithaca

Burling, R. 1963. *Rengsanggri: Family and Kinship in a Garo Village*, Philadelphia, University of Pennsylvania Press

Chen, M. 1993. Women and wasteland development in India: an issue paper, pp. 21–90 in Singh, A. and Burra, N. (eds), *Women and Wasteland Development in India*, Delhi, Sage

Chodorow, N. 1974. Family structure and feminine personality, in Rosaldo, M. Z. and Lamphere, L. (eds), *Woman, Culture and Society*, Stanford, Stanford University Press

Chodorow, N. 1978. *The Reproduction of Mothering: Psychoanalysis and the Sociology of Gender*, Berkeley, California University Press

Chopra, K. and Gulati, S. C. 1997. Environmental degradation and population movements: the role of property rights, *Environment and Resource Economics*, vol. 9, 383–408

Coleman, J. S. 1988. Social capital in the creation of human capital, *American Journal of Sociology*, vol 94, suppl., S95–S120

Correa, M. 1995. *Gender and Joint Forest Planning and Management: A Research Study in Uttara Kannada District, Karnataka*, Dharwad, Karnataka, Indian Development Service

Custers, P. 1987. *Women in the Tebhaga Uprising: Rural Poor Women and Revolutionary Leadership: 1946–47*, Calcutta, Naya Prokash

Dahal, D. R. 1994. *A Review of Forest User Groups: Case Studies from Eastern Nepal*, Kathmandu, ICIMOD

Dahlerup, D. 1988. From a small to a large majority: women in Scandinavian politics, *Scandinavian Political Studies*, vol. 11, no. 4, 275–98

Dasgupta, P. 1993. *An Inquiry Into Well-Being and Destitution*, Oxford, Clarendon Press

Davion, V. 1994. Is feminism feminist? pp. 8–28 in Warren, K. J. (ed.), *Ecological Feminism*, London and New York, Routledge

Eckel, C. C. and Grossman, P. J. 1998. Are women less selfish than men? Evidence from dictator experiments, *Economic Journal*, vol. 108, 726–35

Elgar, Z. 1960. *A Punjabi Village in Pakistan*, New York, Columbia University Press.

Elster, J. 1989. *The Cement of Society: A Study of Social Order*, Cambridge, Cambridge University Press

England, P. 1989. A feminist critique of rational-choice theories: implications for sociology, *American Sociologist*, Spring, 20, 14–28

Frank, R. H., Gilovich, T. and Regan, D. T. 1993. Does studying economics inhibit cooperation? *Journal of Economic Perspectives*, vol. 7. no. 2, 159–71

Fukuyama, F. 1995. *Trust: The Social Virtues and the Creation of Prosperity*, New York, The Free Press

Gaul, K. K. 1994. 'Negotiated Positions and Shifting Terrains: Apprehension of Forest Resources in the Western Himalaya', Doctoral Dissertation, Department of Anthropology, University of Massachusetts, Amherst

Gilligan, C. 1982. *In a Different Voice: Psychological Theory and Women's Development*, Cambridge, MA, Harvard University Press

Goetz, A. N. 1990. 'Local Heroes, Local Despots: Exploring Fieldwork Discretion in Implementing Gender Redistributive Development Policy', paper presented at the Development Studies Association Conference, Glasgow

Guhathakurta, P. and Bhatia, K. S. 1992. *A Case Study on Gender and Forest Resources in West Bengal*, Delhi, World Bank

Harriss, J. and de Renzio, P. 1997. An introductory bibliographic essay, *Journal of International Development*, vol. 9, no. 7, 919–27

Hart, G., 1991. Engendering everyday resistance: gender, patronage and production politics in rural Malaysia, *Journal of Peasant Studies*, vol. 19, no. 1, 93–121

International Rice Research Institute, Philippines (ed.) 1985. *Women in Rice Farming*, London, Gower Press

Jackson, C. 1993. Women/nature or gender/history? A critique of ecofeminist 'development', *Journal of Peasant Studies*, vol. 20, no. 3, 389–419

Jewitt, S. 1996. 'Agro-ecological Knowledges and Forest Management in the Jharkhand, India: Tribal Development or Populist Impasse', PhD Dissertation, Department of Geography, University of Cambridge

Kant, S., Singh, N. M. and Singh, K. K. 1991. *Community-based Forest Management Systems (Case Studies from Orissa)*, SIDA, New Delhi; Indian Institute of Forest Management, Bhopal; and ISO/Swedforest, New Delhi

Kelkar, G. and Nathan, D. 1991. *Gender and Tribe: Women, Land and Forests in Jharkhand*, London, Zed Books.

Lalita, K., Kannabiran, V., Melkota, R., Maheshwari, U., Tharu, S. and Shatrugna, V. 1989. *We Were Making History: Life Stories of Women in the Telangana People's Struggle*, Delhi, Kali for Women

Li, Huey-li. 1993. A cross-cultural critique of ecofeminism, pp. 272–94 in Gaard, G. (ed.), *Ecofeminism: Women, Animals, Nature*, Philadelphia, Temple University Press

MacCormack, C. P. and Strathern, M. (eds). 1980. *Nature, Culture and Gender*, Cambridge, Cambridge University Press

Malhotra, K. C., Chandra, N. S., Vasulu, T. S., Majumdar, L., Basu, S., Adhikari, M. and Yadov, G. 1990. 'Joint Management of Forest Lands in West Bengal: A Case Study of Jamboni Range in Midnapore District', Technical Paper no. 2, IBRAD, Calcutta

Mansingh, O. 1991. 'Community Organization and Ecological Restoration: An Analysis of Strategic Options for NGOs in the Central Himalaya, with particular reference to the Community Forestry Programme of the NGO Chirag', MA Thesis in Rural Development, AFRAS, University of Sussex

Markus, H. R. and Kitayama, S. 1991. Culture and the self: implications for cognition, emotion and motivation, *Psychological Review*, vol. 98, no. 2, 224–53

Marwell, G. and Oliver, P. E. 1988. Social networks and collective action: a theory of the critical mass. III, *American Journal of Sociology*, vol. 94, no. 3, 502–34

McKean, M. A., 1992. Management of traditional common lands (*Iriaichi*) in Japan, pp. 63–98 in Bromley, D. W. (ed.), *Making the Commons Work: Theory, Practice and Policy*, San Francisco, Institute for Contemporary Studies Press

Mencher, J. 1988. Women's work and poverty: women's contribution to household maintenance in two regions of South India, pp. 99–119 in Dwyer, D. and Bruce, J. (eds), *A Home Divided: Women and Income Control in the Third World*, Stanford, Stanford University Press

Miller, J. B. 1976. *Toward a New Psychology of Women*, Boston, Beacon Press

Minturn, L. 1993. *Sita's Daughters: Coming Out of Purdah*, New York and Oxford, Oxford University Press

Moffatt, M. 1998. 'A Gender Analysis of Community Forestry and Community Leasehold Forestry in Nepal with a Macro-Meso-Micro Framework', MA Dissertation in Development Policy Analysis, Department of Economics and Social Studies, University of Manchester

Mukerjee, R. and Roy, S. B. 1993. 'Influence of Social Institutions on Women's Participation in JFM: A Case Study from Sarugarh, North Bengal', Working Paper no. 17, IBRAD, Calcutta

Nanda, M. 1991. Is modern science a western, patriarchal myth? A critique of the populist orthodoxy, *Social Science Bulletin*, vol. 11, nos 1 and 2, 32–60

Narain, U. 1994. 'Women's Involvement in Joint Forest Management: Analyzing the Issues', draft paper, 6 May

Nightingale, A. 1998. 'Inequalities in the Commons: Gender, Class and Caste in Common Property Regimes: A Case from Nepal', MacArthur Consortium Working Paper Series, Institute of International Studies, University of Minnesota

Noponen, H. 1991. The dynamics of work and survival for the urban poor: a gender analysis of panel data from Madras, *Development and Change*, vol. 22, no. 2, 233–60

Nussbaum, M. 1995. Emotions and human capabilities, pp. , 360–95 in Nussbaum, M. and Glover, J. (eds), *Women, Culture and Development: A Study of Human Capabilities*, Oxford, Clarendon Press

Ostrom, E. 1990. *Governing the Commons*, Cambridge, Cambridge University Press

Pandey, S. 1990. 'Women in Hattidunde Forest Management in Dhading District, Nepal', MPE Series no. 9, Kathmandu, Nepal, International Center for Integrated Mountain Development (ICIMOD),

Papanek, H. 1990. To each less than she needs, from each more than she can do, pp. 162–81 in Tinker, I. (ed.) *Persistent Inequalities*, New York, Oxford University Press

Poffenberger, M., Walpole, P., D'Silva, E., Lawrence, K. and Khare, A. 1997. 'Linking Government Policies and Programs with Community Resource Management Systems: What is Working and What is Not', Research Network Report no. 9, A Synthesis Report of the Fifth Asia Forest Network Meeting held at Surajkund, India, December 1996

Prasal, Y., Gronow, J., Bhuju, U. R. and Prasal, S. 1987. 'Women's Participation on Forest Committees: A Case Study', Paper no. 11, Forestry Research Paper Series, HMG-USAID-GTZ-IDRC-FORD-WINROCK Project, December

Putnam, R. 1993. *Making Democracy Work: Civic Traditions in Modern Italy*, Princeton: Princeton University Press

Putzel, J. 1997. Accounting for the 'dark side' of social capital: reading Robert Putnam on democracy, *Journal of International Development*, vol. 9, no. 7, 939–49

Raju, G., Vaghela, R. and Raju, M. S. 1993. *Development of People's Institutions for Management of Forests*, Ahemdabad, VIKSAT

Raju, M. S. 1997. 'Seeking Niches in Forest Canopy: An Enquiry into Women's Participation', mimeo, Ford Foundation, New Delhi

Roy, S. B., Mukherjee, R., Roy, D. S., Bhattacharya, P. and Bhadra, R. K. 1993. 'Profile of Forest Protection Committees at Sarugarh Range, North Bengal', Working Paper no. 16, IBRAD, Calcutta

Roy, S. B., Mukerjee, R. and Chatterjee, M. *c.*1992. 'Endogenous Development, Gender Role in Participatory Forest Management', IBRAD, Calcutta

Sarin, M. 1995. Regenerating India's forest: reconciling gender equity and joint forest management, *IDS Bulletin*, vol. 26, no. 1, 83–91

Sarin, M. 1998. *Who is Gaining? Who is Losing? Gender and Equality Concerns in Joint Forest Management*, New Delhi, Society for Promotion of Wasteland Development

Sarin, M. and Khanna, R. 1993. Women organize for wasteland development: a case study of SARTHI in Gujarat', pp. 91–127 in Singh, A. and Burra, N. (eds), *Women and Wasteland Development in India*, New Delhi, Sage

Seabright, P. 1997A. Is cooperation habit-forming? pp. 283–307 in Dasgupta, P. and Maler, K.-G. (eds), *The Environment and Emerging Development Issues,* Oxford, Clarendon Press

Seabright, P. 1997B. 'The Effect of Inequality on Collective Action', draft paper, Department of Applied Economics, University of Cambridge, UK

Sell, J. 1997. Gender, strategies and contributions to public goods, *Social Psychology Quarterly*, vol. 60, no. 3, 252–65

Sen, A. K. 1985. Well-being, agency and freedom: the Dewey Lectures 1984, *Journal of Philosophy*, vol. 82, no. 4, 169–221

Sen, A. K. 1990. Gender and cooperative conflicts, pp. 123–49 in Tinker, I. (ed.), *Persistent Inequalities: Women and World Development*, New York, Oxford University Press

Sen, I. 1990. *A Space Within the Struggle: Women's Participation in People's Movements*, Delhi, Kali for Women

Shah, A. 1997. Jurisdiction versus equity: tale of two villages, *Wastelands News*, February–April, 58–63

Shah, M. K. and Shah, P. 1995. Gender, environment and livelihood security: an alternative viewpoint from India, *IDS Bulletin*, vol. 26, no. 1, 75–82.

Sharma, A. and Sinha, A. 1993. 'A Study of the Common Property Resources in the Project Area of the Central Himalaya Rural Action Group', mimeo, Indian Institute of Forest Management, Bhopal, Madhya Pradesh

Sharma, K., Nautiyal, K. and Pandey, B. 1987. 'Women in Struggle: Role and Participation of Women in the Chipko Movement in Uttarakhand Region of Uttar Pradesh', Occasional Monograph, Center for Women's Development Studies, Delhi

Sharma, U. 1980. *Women, Work and Property in North-West India*, London, Tavistock

Shiva, V. 1988. *Staying Alive: Women, Ecology and Survival*, London, Zed Books

Singh, M. 1997. 'Lumping and Levelling: Gender Stereotypes and Joint Forest Management', paper presented at the seminar on the Social Construction of Community Participation in Joint Forest Management, organised by the University of Edinburgh and Indian Council of Forestry Research and Education, India International Centre, 9–11 April 1997

Singh, N. and Kumar, K. 1993. 'Community Initiatives to Protect and Manage Forests in Balangir and Sambalpur Districts', SIDA, New Delhi

Sinha, S., Gururani, S. and Greenberg, B. 1997. The 'new traditionalist' discourse of Indian environmentalism, *Journal of Peasant Studies*, vol. 24, no. 3, 65–99

SPWD 1994. *Joint Forest Management Update, 1993*, New Delhi, Society for Promotion of Wastelands Development

SPWD 1998. *Joint Forest Management Update, 1997*, New Delhi, Society for the Promotion of Wastelands Development

Stewart, F. 1996. Groups for good or ill, *Oxford Development Studies*, vol. 24, no. 1, 9–25

Stockard, J., Van de Kragt, A. J. C. and Dodge, P. J. 1988. Gender roles and behaviour in social dilemmas: are there sex differences in cooperation and in its justification? *Social Psychology Quarterly*, vol. 51, no. 12, 154–63

Valian, V. 1998. *Why So Slow? The Advancement of Women*, Cambridge, MA, MIT Press

Vatuk, S. 1981. 'Sharing, Giving and Exchanging of Foods in South Asian Societies', mimeo, University of Illinois at Chicago circle

Venkateshwaran, S. 1992. *Living on the Edge: Women, Environment and Development*, New Delhi, Friedrich Ebert Stiftung

Viegas, P. and Menon, G. 1991. 'Forest Protection Committees of West Bengal: Role and Participation of Women', paper prepared for the ILO Workshop on Women and Wasteland Development, International Labour Organization, New Delhi, 9–11 January

Wade, R. 1988. *Village Republics: Economic Conditions for Collective Action in South India*, Cambridge, Cambridge University Press

White, S. 1992. *Arguing with the Crocodile: Class and Gender in Rural Bangladesh*, London, Zed Books

White, T. A. and Runge, C. F. 1994. 'The Emergence and Evolution of Collective Action: Lessons from Watershed Management in Haiti', draft paper, Center for International Food and Agricultural Policy, University of Minnesota

Zimmerman, M. E. 1987. Feminism, deep ecology and environmental ethics, *Environmental Ethics*, 9, Spring, 21–44