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**SPATIAL AGENDAS FOR DECISION-MAKING IN  
JHARKHAND AND UTTAR PRADESH: THE INFLUENCE  
OF PLACE, CLASS, AND CASTE ON WOMEN'S ROLE IN  
ENVIRONMENTAL MANAGEMENT**

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## **ABSTRACT**

*Using case studies from Jharkhand and Uttar Pradesh, this paper highlights the spatial complexities of environmental knowledge possession and control with reference to gender, class, and caste variations in forest-related and agricultural work as well as environmental decision-making more generally. Particular emphasis is placed on place-specific economic and socio-cultural factors that frequently supplement gender as an influence on task allocation, decision-making and knowledge articulation. The chapter concludes that given the significance of socio-cultural and spatial variations in women's ability to accumulate and vocalize environmental knowledge, flexible and gender-sensitive site-specific development initiatives (coupled with wider structural change) are required if opportunities are to be created for women to increase access to agriculture and forest-based spaces and make use of their agro-ecological knowledges.*

## **Introduction**

Particularly since the mid-1980s, women's involvement in the protection of ecologically valuable spaces has received much attention in the development literature. In India, Bina Agarwal's work has been especially important in promoting the idea that 'women, especially those in poor rural households in India, on the one hand, are victims of environmental degradation in quite gender-specific ways. On the other hand, they have been active agents in movements of environmental protection and regeneration' (Agarwal 1992, p. 119). Vandana Shiva has also emphasized the role of women as the primary users of forest-based and agricultural spaces which has led them to act as environmental custodians and develop complex systems of indigenous knowledge. Together, such emphases on women's environmental roles coupled with an ecofeminist discourse of women's 'special' link with nature, formed a compelling complementarity of interests that justified a strong emphasis on women's participation in environmentally-oriented (particularly sustainable development) programmes.

Consequently, 'women, environment, and development' (WED) and ecofeminist ideas have been adopted into the policy rhetoric of mainstream donor organisations, development-related NGOs, and government departments. But although the adoption of gender-environment issues by development donors and policy-makers is a major step forward, the absence of debates, amongst policy makers, about how women are essentialized has 'led to some misconceived policy directions ... in environmental fields' (Jackson 2002, 502): policy directions that have tended to 'suggest generalized and enduring behavioural differences between genders that can be relied on in gender differentiated policy' (ibid, p.502) while concealing the problems women face in obtaining environmental knowledge and participating in development projects (Jackson 1993a; 1993b; Braidotti, *et al.* 1994; Leach Joekes & Green 1995; Locke 1997; DfID 1997).

There is also concern that the 'mainstreaming' of gender within development policy-making may, by tending to treat women as an undifferentiated, spatially de-contextualized group, discourage an investigation of women's exploitation by other women on the basis of factors like age, seniority, and social standing (Jackson 1993a; 2006; Joekes, *et al.* 1994, Mayoux 1995). Part of the explanation for this may lie in the

disciplinary bias and the dominant role played by economists within development thinking and policy-making; especially the tendency of economists to be less sensitive to the 'uniqueness of particular places and times, cultural specificity and historical background' (Jackson 2002, 504) than are sociologists, anthropologists, political scientists, and, of course, geographers. Yet the development of 'blanket policy advice that is not properly contextualized in specific places' (ibid, p.477) is clearly problematic.

In-depth field-based studies on gender-environmental relations in India have highlighted the dangers of assuming complementarity between women's and environmental interests as a basis for planning development projects (Kelkar & Nathan 1991; Agarwal 1992; 1998; 2001; 2003; Jackson 1993a; 1993b; 2003; 2007; Sarin 1993; 1995; 1998; Kaul Shah & Shah 1995; Locke, 1997; 1999; Gururani 2000 and Jackson & Chattopadhyay 2000)<sup>1</sup>. Several of these authors emphasize how the essentializing and homogenizing tendencies of ecofeminist ideology may discourage more informed gender analyses which differentiate between women's various class, ethnic, religious, and regional affiliations (Agarwal 1992; 1997b; 1998; Jackson 1993a; 2003; 2007a; Locke 1999). Jackson (2006, p.538), in particular, criticizes ecofeminism's insensitivity to place and its 'belief that women share some essence of womanness, out of time and place'.

This chapter seeks to add to this body of work by emphasizing the importance of place as an influence on environmental management, knowledge, and decision-making. After highlighting some of the most significant socio-cultural factors that influence women's environmental work and management in India, the chapter then illustrates the importance of site-specific studies for understanding gender-environmental relations. Drawing upon detailed empirical research from the contrasting regions of Ranchi District, Jharkhand and Bulandshahr District, Uttar Pradesh, attention is drawn to spatial variations in the economic and socio-cultural factors that supplement gender as an influence on environmental task allocation, decision-making, and knowledge articulation. In particular, it is argued that although many women in the research areas are interested in environmental protection, environmental management, and decision-making are both strongly male dominated. Moreover, the predominance of patrilineal inheritance systems and patrilocal residence patterns in both research areas promotes the existence of strongly gendered spaces that enable men to develop greater familiarity with local environments (and continuity of agro-ecological practices) which in turn enables their environmental knowledges to become better developed than women's. The chapter concludes that given the importance of place as an influence on women's ability to accumulate and vocalize environmental knowledge, decontextualized gender-environment policy approaches are unlikely to empower them. Instead, more flexible, place-sensitive development initiatives (coupled with wider structural change) are required if opportunities are to be created for women to develop and use their agro-ecological knowledges.

### **Socio-cultural factors influencing gender-environmental relations**

Within India, as within many other societies, gender divisions of labour are fairly well defined and reflect wider divisions in socially produced space. Some tasks are fairly loosely defined as 'women's jobs' or 'men's work', but other tasks are more strictly

gendered and are enforced by taboos which, as they usually apply only to women, often reduce their 'bargaining power both within and outside the household' (Agarwal 1997a, p.33). Perhaps the most widespread example of this is the taboo against women ploughing (Henshall Momsen 1991) which helps to 'legitimise male control over the production process' (Kelkar & Nathan 1991, p.62). In a society where dowry giving predominates and girl children often become financial liabilities for their parents, the existence of such restrictions are also significant in reinforcing the low 'economic value' of women (Boserup 1970).

Nevertheless, factors such as socio-economic status and religious affiliation can produce significant variations in those gender divisions of labour which appear to make women responsible for 'subsistence production'. Amongst higher caste and class groups, veiling and female seclusion (loosely termed '*pardah*') is particularly important as it affects women's interaction with men and therefore their access to public spaces and decision-making processes. It also affects women's mobility and therefore their willingness and ability to work outside the home (Agarwal 1997a).

At the same time, these regional, religious and socio-cultural variations are usually intersected by broader rural/urban and class/caste divisions which influence the extent to which women practice female seclusion and participate in household decision-making. A common generalisation is that poorer women, because they cannot afford *not* to work (and are therefore unable to observe *pardah*) have greater mobility outside the household and greater autonomy within it. They frequently also have less to lose in socio-economic terms than 'middle' position peasant women who have the status of their families to think of (Agarwal 1994; Kabeer 2003). Within a household, however, the actual division of tasks is usually negotiated according to the relative bargaining positions of different household members: a situation that usually changes over time in response to factors such as age, seniority and inter-personal relationships (Jackson 1993b; 1994; 1995; Leach 1991; Mayoux 1995; Locke 1997).

Even where female seclusion is not practised, a high degree of separation regarding the use of village and neighbourhood space can often make it difficult for women to be involved in village-based decision-making. Efforts to engage women in participatory appraisal, for example, can be problematic if these exercises take place in public places where women are unaccustomed to (and feel uncomfortable about) interacting with men (Mosse 1994). Agarwal shows that in addition to having a sense of unease within public spaces, for women to 'speak out in group meetings, especially in the presence of men but also in the presence of other women, requires overcoming learned behaviour patterns that emphasize the virtue of women's silence and soft-spokenness' (Agarwal 1994, p.110). Studies on joint forest management in India carried out by Sarin (1995), Kaul Shah & Shah (1995), Agarwal (1997a; 1998) and Locke (1997), for example, indicate that women are often uncomfortable about attending mixed group meetings and feel intimidated about expressing a point of view in public places: a situation that is often exacerbated by the male bias of most government officials and the tendency of male-dominated village meetings to disregard women's opinions. Yet the ways in which social identities 'constrain the act of speech as well as its content' (Jackson 2006, p.539) is

something that development research has tended not to recognize. An additional problem is that knowledge is strongly situated within space and women may be inclined to suppress their environmental knowledge in situations where displaying it may be viewed as inappropriate or even rebellious (Agarwal 1997a; Sarin 1995; Kaul Shah & Shah, 1995). Mary Hobley's work in Nepal, for example, shows how community forestry projects that encourage women's participation can actually create substantial tension between men and women (Hobley 1996).

Not surprisingly, these factors have a substantial bearing on the environmental knowledges that different women can obtain, articulate and make use of. Feminist epistemology suggests that 'if knowledge is socially constructed then it is unavoidably gendered, since gender is a major form of social differentiation in all known societies. Women and men know different things and in different ways' (Jackson 2006, p.530) Confirming this, research by Gururani (2000) in Kumaon and by Jackson & Chattopadhyay (2000) in Jharkhand, for example, indicates that although hill women are responsible for much forest-based work, they have little input into decision-making regarding the use of natural resources. Indeed, men often regard them as incapable of understanding how to promote forest regeneration and blame them for forest degradation.

Land ownership and inheritance patterns also play a fundamental role in gendered control over space and can have an important influence on environmental use and management in India. With the exception of a few scattered areas of matriliney and bilaterality, land inheritance patterns are overwhelmingly patrilineal (Agarwal 1994; 1997a; 2003, Kabeer, 2003; Jackson, 2002; 2006). This tends to discourage women from having a sense of responsibility for such spaces as their environmental interest is 'filtered through perceptions of security of land tenure that differ from those of men with primary land rights' (Jackson 1993b p.1953). Although these feelings may be countered by a desire to invest in the quality of their husband's land for the sake of their children, women are, on the whole, likely to have shorter-term environmental interests than men who have a greater stake in the quality of what is very much 'their' land (Development Studies Unit, Stockholm University, 1996). These inequalities are often intensified by the fact that divorce and widowhood can often disadvantage women financially and may have important spatial implications in terms of causing women to move, thereby further reducing their incentive to invest in the protection of these spaces unless they have clearly defined (use or usufruct) land rights (Joekes, *et al.* 1994; Agarwal, 2003).

Another difficulty is that in practice, women's legal rights to inherit land may not be taken up for a variety of reasons which reflect the complexity of gendered property relations and can only be fully understood within the 'broader context of marriage, kinship, livelihoods and life courses' (Jackson 2003, p.477 – see also Agarwal 1997a; 2003; Jackson 1993a; 2003 for a more detailed explanations). Even spaces identified as common property resources have a strong tradition of male management in India although women often have clearly defined use rights. An additional factor that weakens women's identification with spaces beyond the immediate homestead is the tendency for patrilinearity to be accompanied by patrilocal residence patterns; particularly in northern India where marriage is associated with a 'dramatic rupture with the natal family,

combined with simultaneously being a stranger amongst the family one marries into' (Jackson, 2003 p.467).

The spatial dislocation that many women feel on moving to their marital village can help to reinforce existing gender hierarchies. In purely practical terms, patrilocality can also make it very difficult for women to make claims on land or manage any land that they do inherit; especially when their marital home is far away from their natal place (Agarwal 1997a; 2003; Jackson 2003). Indeed, work carried out in India by Dyson and Moore (1983) and Vlassoff (1991) suggests that there is a direct (negative) relationship between women's intra-household autonomy and marriage distance. Distant marriages are particularly common amongst the higher castes/classes who emphasize the need for good and/or strategic marriage alliances and often practise female seclusion. In many cases, this can exacerbate women's 'environmental dislocation' (Jackson 1993a, p.410) and undermine their household bargaining position. In addition to having a lower degree of familiarity with and knowledge about agricultural and forest-based environments than men (Agarwal 1997a), such women often see themselves as outsiders in their marital villages (Jackson 1993a; 2003).

## **Background to the research areas**

### ***Ranchi District***

The first study area is situated within Ranchi District, Jharkhand, and lies within India's central tribal belt. The region has a significant, but not predominant *adivasi* (tribal) community with over thirty different Scheduled Tribes making up around thirty percent of the region's population. Another fifty percent or so is made up of various Scheduled Tribe or Scheduled Caste (SC) *sadans* (artisan castes) which have developed a close reciprocal relationship with the dominant *adivasi* groups and share a common cultural (and often religious) outlook (Kelkar & Nathan 1991).

Agriculture is the primary occupation for most villagers, although average land holdings are quite small (under five acres) and in order to meet subsistence needs, most families supplement farming with seasonal migration and casual labour. Monsoon season paddy is the main crop grown on lower-lying land and crops such as upland paddy, *ragi* (millet), and *urad* (lentils) are grown on drier uplands. The region's limited irrigation potential restricts winter cultivation somewhat although villagers with wells or ponds often grow potatoes, peas, tomatoes, and cauliflower as cash crops. Most households grow vegetables such as peas, tomatoes, potatoes, and gourds in homestead gardens for their own use.

Gender relations in Jharkhand are quite egalitarian, especially within tribal communities where women enjoy an important economic role and a relatively high social status. The high 'economic value' (Boserup 1970; Harriss & Watson, 1987) of tribal women is clearly expressed by the payment of brideprice to the girl's parents upon her marriage to compensate them for the loss of her labour. Although there are some gender divisions of labour regarding the actual roles performed, most tribal and SC women are heavily involved both in agriculture and the gathering of forest produce and generally have a

greater say in household decision-making than other women in the region (Kelkar & Nathan 1991).

Although residence patterns are largely patrilocal and land is inherited only by male descendants of the original tribal settlers, the importance of having sons is not as great as for many other communities as parents without a son can marry a daughter in the *ghar jamai* fashion. This means that they 'adopt' their son-in-law who cultivates their land and (hopefully) provides them with a grandson to inherit their property (Roy 1915). Some of this gender equality has been (and continues to be) lost, however, as 'plains Hindu' practices such as dowry giving are on the increase (Kelkar & Nathan 1991) and there is evidence that female:male sex ratios are declining throughout Jharkhand (Census of India 1881-2001). In addition, witchcraft is prevalent in the region and acts as a significant means of limiting perceived 'upward mobility' - particularly by women who are the usual targets of witch hunts (Jewitt 2002). Indeed, the Jharkhandi custom of allowing widows to have temporary control over land encourages witchcraft accusations. In many cases, these are associated with attempts by 'male agnates to remove the threat to their property rights posed by widows' life interest in land' (Kelkar & Nathan 1991, p.93): a situation that helps to reinforce men's power over women and restricts women's control over local spaces as well as their 'non-conformism or deviance from the rules that are being established' (Kelkar & Nathan 1991, 99).

The field-based research in Jharkhand spans a period of ten years and was conducted by Jewitt in two adivasi-dominated villages in Ranchi District: Ambatoli and Jamtoli (Jewitt 1996; 2002). The major aim of the fieldwork was to examine the local agro-ecological knowledges and environmental management strategies with particular emphasis on gender and community-based differences in forest use and management. An important part of the fieldwork involved the observation of agricultural and forest-based work, attending forest protection committee meetings and conducting interviews (supplemented with participatory rural appraisal, participant- and direct observation techniques) to investigate intra-household and inter-community divisions of labour, decision-making strategies and agro-ecological knowledge systems. Rural electrification is proceeding slowly in Ranchi District and had not reached either of the study villages at the time of the last field visit.

### ***Bulandshahr District***

The second study area is situated within Bulandshahr District, part of the relatively prosperous Ganga-Jamuna *doab*<sup>ii</sup> of western Uttar Pradesh. Prosperity has not always been the norm here as drought, followed by crop failure in 1837-38 led to 'famine in its most aggravated form' (Atkinson 1903, p.45). In response, the British developed a canal system in the doab to bring '...stability and certainty to cultivation, and thereby to rent and revenue, by making husbandry easy and profitable' (Atkinson 1903, 45). These objectives have indeed been realised: Bulandshahr District and the surrounding alluvial plains have been transformed into some of India's most productive agricultural areas and have received considerable government investment. Bulandshahr was one of the districts selected for intensive development as part of the Intensive Agricultural Districts Programme (IADP) in the 1970s, later extended to become the Intensive Agricultural

Areas Programme (IAAP). It was then included in the High Yielding Varieties Programme (HYVP) of the 1970s (Baker 1975).

Bulandshahr, and the flat and largely featureless spaces of western UP's doab provide an interesting contrast with Jharkhand. Bulandshahr's agriculture is comparatively hi-tech, developed around Green Revolution (GR) technology, especially high yielding seed varieties, irrigation from canals and tubewells, and essential inputs of inorganic fertilizer. Through the use of technology, the soil, a major abiotic component of the agro-ecosystem is largely controlled, or managed, to assure the supply of a set of essential nutrients to the HYVs. Given this package of inputs, the HYVs can be grown in virtually any soils. In Jharkhand which is not a GR area and where much agriculture is rainfed, and not so heavily reliant on irrigation water and inputs of inorganic fertilizer, the success of crops grown is more dependent on local knowledges and skills in exploiting environmental variability. Environmental management skills in Bulandshahr's villages are thus very different from those of farmers in Jharkhand.

Fieldwork in Bulandshahr has spanned more than thirty years. It commenced in 1972 when Baker (1975) conducted fieldwork in six villages of the District and has been updated by fieldwork conducted by Baker & Jewitt in 2001-8 in three of Baker's original study villages. Some thirty years ago, Bulandshahr, and much of Uttar Pradesh were recovering from drought, crop failure, and in some areas, famine. Inhabitants of Bulandshahr avoided famine largely because of access to irrigation, but for those who did not have this privilege, the fear of crop loss, and hunger is something that has not been forgotten.

Agriculture was the dominant economic activity in the study area in the 1970s and remains so today. Wheat, mainly HYVs, dominated the *rabi* (spring) season, while the *kharif* or summer season produced a wider variety of crops, including maize, rice, millet, and lentils. Sugarcane, the growing period of which extended beyond a single season was also of significance in the cropping pattern. In addition to the two dominant seasons, farmers also took catch crops of chillies, beans, gram, and other short duration crops in the *zaid*, a short season before the start of the *rabi*. *Zaid* crops gave variety to the diet (Baker 1975). The patterns evident in the 1970s are still in existence in the study villages but with some notable changes: wheat continues to dominate the *rabi* but rice growing has increased considerably in the *kharif*. Maize remains an important *kharif* crop, but is a distant second to rice. Rice has increased in response to growing demand and to the increasing availability of irrigation from tubewells which have spread with the rural electrification programme. Sugarcane has become a major cash crop and is grown mainly by the larger farmers. Overall, the range of crops has diminished.

With regard to those who work the land, Rajputs and Jats dominated local agricultural spaces thirty years ago together with a smaller proportion of rich Moslems (Baker 1975). Today, many of the Rajputs have capitalized on their economic gains from the Green Revolution and have sold their farms in order to develop more urban lifestyles and derive a living from 'business' (Jewitt & Baker 2006). The same is true of many Jats, though a higher proportion of this caste group has remained in the villages as farmers. The major

change is that lower castes such as Lodhas and Chamars are now numerically dominant among the Hindu cultivators in the study villages. The number and proportion of Moslem farmers has increased substantially in each of the villages, allegedly a result of indifference to birth control. The result has been increased land fragmentation and persistent poverty amongst families that do not have relatives working in (and remitting money from) the Gulf. Nevertheless, accumulating wealth has been possible for some of the SCs as non-farm income generating opportunities have increased, as has the cost of wage labour. In addition, many SCs who had no land in the past have now acquired greater control over local agricultural spaces by purchasing land from out-migrating Rajput families or, on a smaller scale, by means of land distribution schemes that give preference to these groups (Sachidananda 1970; Lal 1983). However, although some of the poorest are undoubtedly much better off than they were over 35 years ago, the circumstances of others have not improved to the same extent (Jewitt & Baker, 2006).

But what of women? Thirty years ago Rajput and Jat women were virtually invisible in an agricultural context in Bulandshahr District. Most spent the majority of their time in domestic spaces, caring for their families, tied by tedious, labour intensive and time-consuming tasks such as grinding flour for chapattis and carrying water from well to home. They had little involvement in decision-making in relation to the Green Revolution as agricultural land was regarded primarily as a male-dominated space (Baker 1975). Today, life for women has changed markedly with many having experienced a significant blurring of public/private boundaries. Increasing education levels, especially amongst wealthier and higher caste women, has increased rural to urban migration in search of white collar work while lower (including Scheduled) caste Hindu and poor Moslem women have dramatically increased their levels of participation in paid (especially agricultural) labour<sup>iii</sup>. This has, in turn, given them greater mobility as well as a greater say in household decision-making both within and outside the domestic sphere.

Group discussions with resource poor men and women from both Hindu and Moslem families revealed that although men are the principal agricultural decision makers, women's greater involvement in work outside the household has often been accompanied by greater decision-making power within it. Women are consulted more nowadays as they play a much more active role in farming and income generation than they did thirty years ago. By contrast, the richest Hindu women from the few remaining Rajput families are involved much less in the day to day activities of farming than the lower castes, and most wealthy Moslem women identify more closely with private household spaces. This, therefore, accords with Jewitt's findings in Jharkhand where the poorest women frequently have greater spatial mobility and input into household decision-making *because* of their poverty.

The main aim of Jewitt and Baker's ongoing work in Bulandshahr is to examine and evaluate the impact of over 35 years of GR technology on rural livelihoods. In view of the contradictions in the literature on the agro-ecological knowledge of Indian women (Agarwal 1997b; 1998; Jackson 1993a; 1993b; 2003; Shiva 1988; 1992) one aim of our study was to investigate variations in the utilisation of and control over local agricultural and forest spaces by gender, age, class and caste. The methods selected for this purpose

were informal discussions and a range of participatory methods which have involved focus groups with richer and poorer men and women from Hindu and Moslem households, and also men and women from landless families. In-depth discussions with key informants (notably families interviewed during Baker's 1972 study), have further supplemented field information on women's livelihoods.

### **Gender variations in environmental use and management**

In Ranchi District, forests and agricultural fields are strongly gendered spaces and many tasks are quite strongly divided by gender. Looking first at forest-based gender divisions of labour, the general patterns in the fieldwork villages appear, at first sight, to confirm the widely held WED/ecofeminist stereotypes. By far the most time consuming forest-based activity is fuel wood collection and this, plus the gathering of fruit, seeds, mushrooms, twigs, leaves, medicinal plants and small branches for animal fodder, is widely regarded as a job for women. Timber cutting, meanwhile, is a male-dominated activity along with hunting and the cutting of large timbers for house construction and plough-making.

Within agriculture, ploughing is strictly taboo for women and although many other agricultural tasks are not gender specific in theory, in practice they often reflect intra-household power relations. Generally speaking, land preparation work involving bullocks is done by men, while manual field preparation (such as clod breaking) is often done by women. Hoeing, transplanting and weeding are predominantly female tasks while harvesting, threshing and winnowing are carried out by both men and women. Husking, however, is a predominantly female task as it is carried out at home and can easily be combined with household work

On closer examination, however, there are some important exceptions to these broadly understood gender divisions of labour and far from being static, they are frequently re-negotiated and re-defined. The most significant anomalies are the relatively well-off Moslem households in a neighbouring village which observe a loose form of female seclusion and discourage women from working outside quite clearly defined domestic spaces such as the house and homestead garden. Often, these families hire adivasi labourers to undertake such work, although some Moslem men do get involved in the collection of firewood and minor forest produce (Jewitt 2000a; 2002).

In a somewhat similar vein, there is a tendency amongst wealthier families in Ambatoli for women to be relieved, whenever possible, from laborious tasks such as fuel wood collection. This is particularly noticeable amongst Ambatoli's Backward Caste households which, in addition to being towards the top of the village's socio-economic hierarchy, opt for strategic marriage alliances (attracting wives from distant places) and try, wherever possible, to restrict women's work to the homestead and its immediate environs. As a result, Backward Caste households often prefer to replace women's forest-based and agricultural labour with that of male household members or hired labourers although this varies according to financial circumstances and social aspirations. In the wealthiest Backward Caste households, women's agricultural work is usually restricted to

activities like vegetable cultivation that can be carried out close to the homestead. In poorer Backward Caste households, meanwhile, economic realities make female seclusion impractical and women usually undertake the same tasks as adivasi and Scheduled Caste women.

With respect to forest use, 'richer' households are generally less dependent on forests than poorer households (as they can afford to use LPG or kerosene rather than fuel wood as a cooking fuel) and even amongst adivasis, women from the wealthiest households sometimes manage to avoid the drudgery of fuel wood collection by bargaining with their husbands to pay for it to be delivered. Age, too, can be an important influence on intra-household divisions of labour and in joint households where married sons (and their wives) live with their parents, intra-gender bargaining over work allocation can be quite heated. Where socio-economic circumstances (and labour resources) permit, senior women and their daughters commonly 'bag' the best jobs and allocate the most tiresome tasks to the youngest married women. In many cases, the autonomy of young married women within the household increases significantly after having children (Jewitt 2000b; 2000b; 2002)

But far from being fixed, intra-household power structures are forever changing and being re-negotiated in response to both internal and external events such as the addition of a new family member or a change in environmental or economic circumstances. Task allocation is also more flexible than stereotypical gender divisions of labour would suggest. There are many examples of women doing men's work and men doing women's work 'even if the modalities by which they do so may differ and reflect other social patterns of disadvantage to women (e.g. they tend to have access to animal traction, bicycles, or equipment such as saws, denied to women)' (Joeke, *et al.* 1994, p.139). A classic example of this the way women usually carry agricultural or forest produce as head loads whereas men often use bullock carts or cycles. Sometimes, these 'anomalies' clearly result from specific factors such as environmental degradation, (when men often help women with their tasks), seasonal agricultural labour shortages<sup>iv</sup> or economic hardship which forces women to act as heads of households while men migrate. More commonly, however, they simply reflect the continual re-negotiation of intra-household responsibilities within wider structural factors of class, caste and place.

In the Ranchi District research villages, for example, pressure on degrading forest resources and changing systems of forest management have caused fuel wood collection to be shared between women and men to a greater extent than Shiva's account of the situation in Northern India (Shiva 1988). Contrary to her argument that forests are 'largely a women's domain for producing sustenance' (Shiva 1988 p.61), adivasi men and women participate fairly equally in timber cutting and fuel wood collection during Jamtoli's annual timber coupe and also in any replanting work following the coupe (Jewitt 2000a). In Ambatoli, adivasi women are often helped by their husbands to collect fuel wood: the men taking bullock carts to maximize the amount of fuel brought back in a day. In wealthier Backward Caste households, meanwhile, men do the lion's share of the forest-based gathering work and field based agricultural tasks. The only contribution that women from many of these households make to fuel wood collection is the gathering of

twigs and leaves from within the homestead. In other words, even in a region characterized by relatively egalitarian gender relations and fairly minor socio-economic inequalities, there are still households in which women have little familiarity with forest- and agricultural spaces and, by extension, have very limited knowledge of managing these environments (Jewitt, 2000b).

Thirty years ago, a similar situation was apparent in Bulandshahr as women had little involvement in farming and played no significant part in the adoption of GR technology as this was considered to be a strongly male domain (Allan 1973; Baker 1975). Nowadays, however, the situation is rather different as material wealth in the study villages has increased significantly and rural electrification within the District is now virtually complete<sup>v</sup>. These two factors have enabled many households to purchase labour saving equipment, especially for the home: a situation that has helped to release women from domestic drudgery<sup>vi</sup> and enabled them extend their spatial horizons by participating more in work outside the home, notably in agriculture. This, in turn, has given them earnings of their own which have often been accompanied by greater decision-making power within the household.

All these and many more labour saving facilities have given many women the opportunity to work outside the domestic sphere and have slowly enabled them to develop more diverse work patterns and to share more traditionally male dominated spaces. Some of these activities bring women into closer contact with agro-ecosystems than in the past, while others have allowed them to maintain a distance from them, and particularly from farming. Reflecting the situation in Ranchi district, those women who are least involved in agriculture fall essentially into two groups. The first consists of the richest Hindu women, the few remaining Rajputs, and some Jats, whose lack of participation in agricultural work reflects their social status. Higher levels of education are distancing many younger women in this group from spaces associated with environmental use and management, and towards professional and white-collar careers in urban areas. The second group is made up of relatively well-off Moslem women whose interaction with spaces beyond their immediate households restricted on account of purdah.

In contrast to these two groups, the majority of Hindu women (mostly the lower castes and classes) and poorer Moslem women have experienced a substantial expansion of their work spaces and their involvement in environmental use and management over the past 35 years as their domestic workloads have eased. In households with very small plots, women are involved in most agricultural tasks, contributing their skills and labour wherever they are needed. These households cannot afford to hire agricultural labourers and as many sell their own labour to others, women's contribution to farm work is essential. Gender divisions of labour have strong parallels with the situation in Ranchi District with men having primary responsibility for ploughing and seeding while women are more involved in repetitive tasks such as weeding.

A second major activity that has encouraged women in Bulandshahr to expand their work spaces is animal husbandry. Buffaloes have largely replaced cows in the District over the

past 35 years as they are a great deal stronger than cows and produce a larger quantity of milk (Kar 2002). Animal husbandry is now a major element of rural life in the study villages and an area in which women are actively involved. Even women with marginal involvement in farming, such as those from landless or purdah-observing households, often keep buffaloes as they can be stall-fed within the household compound. To feed them, women collect bundles of grass and weeds from nearby fields and roadsides which are then chopped up with a hand operated chaff cutter; another innovation now afforded by, or accessible to, most families in the study villages. To ease the burden of fodder collection, some families have negotiated with sugar cane growers to provide labour during the cane harvest in exchange for free access to the crop residue for use as fodder. Women usually gather the cane residues while men help with the cane harvest and in this way, they work together to secure valuable and nutritious food for their buffalo. Men also claim to share responsibility for washing and milking the buffalo, although our observations indicate that women have prime responsibility for these aspects of the animals' care.

The main economic benefit associated with buffalo keeping stems from the sale of their milk and offspring.<sup>vii</sup> In addition to this, buffalo keeping has significant environmental implications as they provide large quantities of valuable dung. Every morning in the dry season women collect this dung, mix it with chaff and water and re-work it into dung cakes which are then dried and used for fuel. The quantity made is directly related to the number of buffalo kept by a family, and larger families usually have surplus dung cakes for sale. As income from this belongs entirely to women, access to this resource has enabled women who keep buffaloes to become considerably empowered in financial terms.

Thus greater wealth as a result of increased agricultural productivity following the adoption of GR technology has led to the purchase of labour saving devices which enable many women to be less confined to household spaces and to live more economically and spatially varied lives. Many have become more involved in environmental work than was the case thirty years ago, although, echoing the situation in Jharkhand, there are important socio-economic variations to this trend.

### **Gender variations in environmental knowledges**

As is the case for gender divisions of labour, women's and men's environmental knowledge systems display important variations by class, caste, religion, agro-ecological region, contact with external influences and so on. The possession and communication of local knowledge is also spatially determined as it occurs within 'socially and politically constituted networks of different actors, organisations and institutions' (Long & Villareal 1992, quoted in Scoones & Thompson 1993, p.16). But in contrast to Shiva's claim that Indian women have 'a holistic and ecological knowledge of nature's processes' (Shiva 1988, 24) and act as the main 'selectors and preservers of seed' (Shiva 1992, p.10), evidence from Ranchi and Bulandshahr Districts suggests that men's deeper knowledge of and control over local spaces enables them develop better agro-ecological knowledges.

One of the most important reasons for this stems from a basic familiarity with local forest

and agricultural spaces. The predominance of patrilocal residence patterns gives men a lifetime of experience farming local fields and (in Jharkhand) using nearby forests. Most married women, by contrast, are unfamiliar with their marital place and its surroundings prior to their weddings. In Ranchi District, in-depth interviews with women from Ambatoli village showed that patrilocal residence patterns have a profound impact on environmental perceptions. Out of eighteen respondents, eight were frightened when they first saw Ambatoli forest and thought it might harbour wild animals or *bhuts* (spirits). Two of these eight were from quite well off urban-based Backward Caste households and had never undertaken field- or forest-based work either in Ambatoli or in their natal places. Another four adivasi women had never collected fuel wood before and had to be taught by their husbands or parents-in-law about the properties of different trees and plants and where to find them. Even women who had collected fuel wood in their natal places said that it took some time before they learned where to find the best forest foods and few had more than a basic knowledge of medicinal herbs (Jewitt 1996; 2002).

With respect to agriculture, meanwhile, patrilinearity and patrilocality have a significant impact on women's ability to access local agricultural spaces in order to develop their environmental knowledge while wider restrictions on mobility and speaking out in public are important in discouraging their active participation in agriculture. Despite the fact that patrilocal residence patterns give women more experience of different places, environments and crop types, social norms tend to make it difficult for them to utilize this knowledge (Jewitt 2000b). Instead, it is usually men, as the main landowners, who conduct agricultural experiments and because of their greater access to public spaces it tends to be men that have dealings with (usually male) agricultural extension officers and Block Development Officers.

Men are also normally the first to learn about new seeds, agricultural techniques, marketing strategies etc. and consequently make most agricultural decisions. Even in landless families, it is usually men, as heads of household, who decide whether household members will seek paid agricultural or other employment. Most women, therefore, are heavily dependent on men to determine whether and to what extent they will interact with agricultural and forest based spaces. The degree to which Ambatoli's Backward Caste women can develop agro-ecological knowledge, for example, is dependent on whether their husbands can afford buy them out of agricultural work. Most adivasi and Scheduled Caste women, meanwhile, usually know plenty about the tasks that they undertake but still view agricultural decision-making as their husbands' responsibility. Even making agriculture-related suggestions can be tricky as many women feel that they would be scolded or ridiculed for interfering in their husbands' business. Consequently, many women feel that the only spaces in which they can utilize their agricultural interest and knowledge is in their homestead vegetable gardens (Jewitt 2000b).

Echoing the situation in Ranchi District, group discussions with women and men (separately and together) in the Bulandshahr study villages indicated that men possess better developed agro-ecological knowledges than women. As has been explained above, women's involvement in agricultural (and animal husbandry) spaces is comparatively recent in Bulandshahr whereas men's agro-ecological knowledge goes back much

further. Men's deeper understanding of the relationship between crop yields and soil, for example, emerged during group discussions in all of the study villages. In focus group meetings about the factors influencing HYV wheat yields, men provided a detailed picture of how the initial introduction of HYVs brought dramatic yield gains followed by further improvements as the quality of seed was improved and then a levelling off of yields. Most participants attributed this to a reduction in soil organic matter content and the use of large quantities of fertilizer which, although effective, was acknowledged by many to be wasteful and probably environmentally damaging.

When the issue of declining yields was discussed with Hindu women who were involved in farming, however, they could offer little in the way of explanation although they were clearly aware of the situation. A few mentioned declining soil organic matter as a problem, but they could not provide the environmental details which were forthcoming from the men. However, they were aware that fertilizer, and at times insecticide and pesticide were being used in quantities which were probably damaging to the environment and to health. They were particularly concerned about the state of the water supplies and about related impacts on their children and were not backward in expressing their concerns about these issues. Such environmental knowledge seems to have been learned recently, and women's ecological interests and concerns appear to be very different from those of men who capitalize on agro-ecological knowledges developed over generations and rooted in spaces over which they have longstanding control.

Similar discussions about declining yields were also held with Moslem women who spent much of their time within the household. Few of them worked in the fields, and those who did were mainly involved in the collection of fodder for animals. It was therefore not surprising that these women appeared to know little about farming or about wider concerns relating to declining yields. Their agro-ecological knowledge thus seemed inferior to that of Hindu women involved in agriculture, whose knowledge, in turn, appeared to be inferior to that of men who have long dominated agriculture and have the added advantage of greater familiarity with local agricultural spaces.

### **Gender and community-based variations in environmental decision-making and management.**

These gender variations in agro-ecological knowledge contribute to and are in turn influenced by wider gender variations in the management of local agricultural and forest-based spaces. At the same time, gendered knowledge about such spaces is influenced by considerable regional, community, religious, socio-cultural and class variations. This is particularly true of resource management institutions which have a long tradition of male dominance in both research areas as in India as a whole. In order to understand gender variations in environmental management, therefore, a 'sophisticated analysis of gendered bargaining processes that captures the negotiation within and between households and communities over resources and their management' (Locke 1997, p.18) is needed.

In Jharkhand, for example, it is hard to understand gender-based differences in possession and control over agro-ecological knowledge without some familiarity with local magico-religious beliefs (notably the threat of witchcraft) plus an understanding of the political

economy that lies behind these beliefs. As mentioned earlier, most witchcraft accusations are directed against women who seem to transgress existing social norms; notably those concerning property ownership.

A major consequence is that women are often caught in a kind of isolation paradox. Although much of their work is conducted in and around agriculture and forest-based spaces, they have little input into the decision-making institutions that evaluate and propose solutions to environmental problems. Indeed, the male dominance of resource management institutions throughout India demonstrates how important it is to distinguish between environmental work (in which women have a major role) and environmental management, from which they are, by and large, excluded. In Ambatoli and Jamtoli, inter-village decision-making about forest management is carried out almost exclusively by men; usually during the meetings of male dominated institutions such as *Parhas*.<sup>viii</sup> Men also have more comprehensive environmental knowledge systems plus the local-level political power to make use of them as they have a lifetime's experience of using and managing local forest-based and agricultural spaces. This is particularly true amongst wealthier households (particularly the Backward Castes in the research villages) which try, as far as is economically possible, to restrict women's interaction with such spaces.

A paradox of a different nature exists in Bulandshahr as women's responsibility for cattle dung collection has given them unintentional control of a key environmental resource. Many years ago when fuel wood sources declined in the District, women started to use cattle dung mixed with crop residue as an alternative cooking fuel. Nowadays, women collect most of the dung and crop residues produced in the study villages for use as fuel and any surplus dung cakes are sold. And despite the fact that men associate falling crop yields with declining soil organic matter content (caused by an overuse of inorganic fertilizer and inadequate inputs of organic fertilizer), only a small proportion of households have attempted to divert cattle manure into compost rather than dung cake making. For those richer farmers who can afford alternative cooking fuels and have the animals and the space to produce large amounts of compost, however, wheat yields are not declining and have been maintained at around 5 t/ha. The conclusion by most men involved in the fieldwork was that an increase in soil organic matter would help to halt the decline in yields. But in view of women's control of animal dung, and the economic freedom that many earn from it, any pressure to divert dung from domestic to agricultural spaces is likely to be resisted by them in the absence of alternative sources of income and fuel.

Echoing the situation in Ranchi District, however, discussion between men and women about environmental concerns of this kind seems to be rather limited; as indicated by the low levels of awareness amongst women about soil organic matter levels and the relative lack of concern amongst men about pollution from agro-chemicals. Part of the problem seems to stem from women's lower levels of interaction with agricultural spaces, but economic and labour-related issues are also significant. Landless households, for example, do not require dung as an organic fertilizer, but rely heavily on dung cakes as a cooking fuel (alternative fuels and stoves being relatively expensive) as well as a source of income. Small and medium households, on the other hand, tend not to produce organic

compost as it is a laborious process and requires them to set aside a piece of land on a long term basis for this purpose. So until yield declines worsen, composting is likely to be resisted by women from such households, as it would cause them to lose income by diverting animal manure away from the making of dung cakes for sale.

Overall, then, among those women with limited current involvement in agricultural spaces, the Bulandshahr fieldwork revealed little evidence of any desire to be further involved in environmental management. Education was enabling an increasing number of higher caste women to expand their spatial horizons and search for well-paid white collar and professional jobs in Bulandshahr and beyond<sup>ix</sup>. Among the majority of average to low-income Hindu households, by contrast, women now have increased involvement in agricultural spaces and for many of the poorest households, the active participation of women is of critical importance to the survival of the household.

The past 35 years have thus seen an increase in work opportunities for women in Bulandshahr. At the same time, opportunities for material improvement have expanded along with their engagement with spaces beyond the household. At one level material improvement has been achieved through increasing family wealth, mainly as a result of the adoption of GR technology. At another level, women are finding a wider range of opportunities to earn money for their families and for themselves. Allegedly, their increased role in generating family income has gained them respect, but in spite of this, most women remain very much in second place to men with regard to non-domestic decision-making. For those women who have little involvement in agricultural spaces, challenging male domination in this area appears not to be a concern. Instead, they are interested in increasing their capacity for personal material improvement; often by seeking forms of employment that are linked more closely to urban spaces than to rural environments. These findings thus confirm the need for location-specific fieldwork if women's engagement with agricultural and forest-based spaces as well as their wider aspirations are to be better understood.

## **Conclusion**

Empirical data from both Ranchi and Bulandshahr Districts reinforce the importance of recognising 'geographies of gender' within development decision-making because 'while gender inequalities may be near universal, they are not uniform, either across space or over time' (Kabeer, 2003 p.xvi). Socio-economic factors have a major influence on women's interaction with agriculture and forest-based spaces which impacts on their ability to accumulate, vocalize and use agro-ecological knowledge. The importance of 'material realities' (Agarwal 1992) and taboos in determining gender divisions of labour and restricting women's mobility outside the home are also highlighted.

While WED/ecofeminist approaches have done much to reverse the prevailing male dominance of traditional development approaches, romanticized ideas of a special women-environment link run the risk of emphasizing women's 'difference' before their equality (in the form of access to education, jobs or political participation through to basic needs such as calorie intake and health care) has been achieved (Nanda, 1991). Indeed, by romanticizing women's involvement with agricultural and forest-based spaces

under the banner of their so-called 'subsistence perspective' (Shiva, 1988) undifferentiated ecofeminist-WED perspectives can help to prevent a critical analysis of the repressive social structures that make women responsible for this work.

Another major drawback of ecofeminist/WED accounts of gender-environment relations is that they often fail to differentiate between an engagement with forest-based and agricultural spaces and environmental concern. While evidence from Ranchi District demonstrates that women have a major (although not exclusive) role in forest-based gathering work, it also shows how environmental damage occurs due to women's careless cutting of young saplings. Moreover, the socio-political constraints that many women from both Ranchi and Bulandshahr face in obtaining and making use of environmental knowledge plus the strong tradition of male-dominance in the management of agricultural and forest-based spaces highlight the dangers of 'invisibilizing' men and their environmental knowledge systems (Jackson 1993a; 1993b; Leach Joekes & Green, 1995). As for task allocation, empirical data from both research areas emphasize the complexity, fluidity and frequent re-negotiation of gender divisions of labour (and associated spatial engagement) in response to changes in intra-household power relations (and bargaining strategies - Jackson 1993a; 1992b; 1995) and external economic factors.

At a broader scale, such observations have important implications for policy-makers; especially if gender 'mainstreaming' within major policy-making institutions is to produce positive outcomes in the longer term. Yet despite making commitments to reduce gender inequality, many national and international development organisations continue 'to show very limited and compartmentalized concerns with gender equality' (Kabeer, 2003 p.225) due to a lack of 'core competence' on gender issues. And although major development institutions recognize women's centrality to the achievement of many MDGs, the importance of their 'economic agency as a force for poverty reduction continues to be overlooked' by development policy makers (Kabeer, 2003 p.xv). Kabeer goes on to suggest that most Poverty Reduction Strategy Plans (PRSPs) pay little attention to gender disparities despite the World Bank's emphasis on the need for an explicit consideration of gender issues at all stages of the PRSP process.

Unfortunately, continued emphases on so-called 'blanket policy advice' (Jackson, 2003) and 'one size fits all' formulae (Kabeer, 2003 p.204) that are not properly contextualized in specific places are likely to undermine the contribution that women can make to a variety of development goals. By considering women as an undifferentiated category and assuming that their participation in development planning is sufficient, such approaches overlook the complex and shifting nature of gendered spaces and the ways in which locally-specific power hierarchies can disadvantage women in different ways (Braidotti, *et al.* 1994; Mosse 1994). Instead, development policies that seek to reduce gender inequality and tackle poverty need to be based on place-sensitive micro-level analyses that can reveal 'the various synergies and trade-offs as well as the deep-rooted prejudices that operate in different contexts' (Kabeer, 2003 p.204). As case study material from Jharkhand and Uttar Pradesh indicates, place-specific gender analysis that looks 'beyond immediate causes and effects to the underlying structural inequalities that

gave rise to them as well as to their longer term effects' (ibid, p.217) offers a much more powerful tool for understanding, and working towards the reduction of particular gender inequalities.

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<sup>i</sup> Agarwal argues that eco-feminist discourse 'takes little account of a possible gap between women having an interest in environmental protection, and their ability to translate that interest into effective action' (Agarwal, 1998 p.7.).

<sup>ii</sup> Land between two rivers

<sup>iii</sup> According to Kabeer (2003) the recent 'feminisation of agricultural wage labour' stems from the loss of land for subsistence agriculture, increased cropping intensities associated with the Green Revolution and the collapse of rural non-agricultural employment following the collapse of rural-oriented government programs.

<sup>iv</sup> At planting time when labour is short, for example, men sometimes help women with typically female tasks such as transplanting. Similarly, men and women often work together at harvest time.

<sup>v</sup> Thirty years ago, electricity was available to only one of the six villages in which Baker worked (Baker 1975).

<sup>vi</sup> Indeed, during group discussions, women frequently extolled the benefits of electricity as electric flour mills remove at least two hours of daily drudgery at the flick of a switch. Another important area where women have benefited is through the installation of hand pumps for water in all except the poorest homes which means that women no longer have the daily chore of drawing water from (sometimes quite distant) wells and carrying it home.

<sup>vii</sup> Women of poorer families were frequently involved in the rearing of buffalo calves for richer village families. These women would be given responsibility for a calf, which would involve feeding it and keeping it in good condition until it was fully grown, when it was returned to its owner. In exchange, the women had access to the dung produced by the young animal which they would use for the production of dung cakes. They might receive money from the owner of the animal, or perhaps payment in kind, such as access to fodder, if they had other animals to feed as well.

<sup>viii</sup> Yet women are frequently blamed by men for causing forest decline and bear the brunt of the additional work (usually having to travel further to collect fuel wood) when forest protection systems are established.

<sup>ix</sup> Even amongst the poorest, least educated and landless (mostly Moslem and Scheduled Caste) women, crafts such as knitting and bead work had increased in recent years, producing an important element of income diversification. Their interest in sharing agricultural decision-making appears to be minimal and they seem content to leave such issues to the older men of the household as many of the younger, well educated males have already exchanged rural drudgery for urban living.