Gendered Participation in Water Management: Issues and Illustrations from Water User Associations in South Asia

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ABSTRACT

The widespread trend to decentralize natural resources management responsibility from the state to "communities" or local user groups has by and large ignored the implications of intra-community power differences for the effectiveness and equity of natural resources management. Gender is a recurrent source of such differences. Despite the rhetoric on women's participation, a review of evidence from South Asia shows that female participation is minimal in water user organizations. One reason for this is that the formal and informal membership criteria exclude women. Moreover, the balance between costs and benefits of participation is often negative for women because complying with the rules and practices of the organization involves considerable time costs and social risks, whereas other ways to obtain irrigation services may be more effective for female water users. Although effective, these other and often informal ways of obtaining irrigation services are also typically less secure. More formal participation of women can strengthen women's bargaining position as resources users within households and communities. Greater involvement of women can also strengthen the effectiveness of the organization by improving women's compliance with rules and maintenance contributions. Further detailed and comparative research is required to identify the major factors that affect women's participation and control over resources, if devolution policies are to address the tension between objectives of transferring control over resources to community institutions, and ensuring the participation of all members of the community, especially women, in highly stratified and patriarchal societies.

INTRODUCTION

The devolution of natural resources management responsibility from the state to "communities" or local user groups has become a widespread trend that cuts across countries and re-

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sources sectors. Programs such as Joint Forest Management, Irrigation Management Transfer, and Fisheries Co-Management can all be seen as variants of attempts to establish or strengthen "community-based natural resources management." What is happening in irrigation, as in other sectors, can be seen as the convergence of a number of policy trends: decentralization, which attempts to improve the management of natural and fiscal resources by moving both decision-making authority and payment responsibility to lower levels of government (e.g., India's *panchayati raj* programs); privatization, which transfers ownership of resources from the public sector to groups or individuals (including for-profit firms); and participation and democratization, which seek the involvement of citizens affected by programs, for social goals of empowering local people as well as for goals of improving program performance.

However, devolution of control over resources from the state to local organizations does not necessarily lead to greater participation and empowerment of all stakeholders. This is particularly true in highly differentiated and stratified societies. Romanticized views of "communities" as homogeneous groups that have a strong common commitment to maintaining their local resources base, while ignoring the effects of power differences within the community on who can participate in decisions regarding management and the share of benefits, risk reinforcing inequality (Agrawal and Gibson 1997).

While there may be many ways of identifying groups that are frequently marginalized, gender differences in power and influence are a recurring pattern. Women's participation has received considerable rhetoric, but there has been less carefully paid attention to the differences between women's and men's needs and priorities with regard to resources use, and the barriers women face in achieving control over resources, especially within local organizations.

This paper examines the implications of gender differences for local management of natural resources, with special reference to the management of irrigation systems in South Asia. In this context, a highly stratified social structure, as well as common patriarchal norms on the appropriate position of women, provide a clear challenge to notions of homogeneous "communities" for managing resources. At the same time, the vital nature of water resources for men and women, both for irrigation and other uses, highlights what is at stake in the process of devolution of resources control.

The intra-household literature provides an important source of insight and understanding of gender differences. The section following this introduction reviews the major issues related to intra-household models, and links them to the analysis of gender in community studies. The paper then examines the implications of gender for devolution of natural resources management, especially irrigation. Because the outcome of devolution programs hinges on the activity of local organizations, the third section of the paper examines the extent and forms of women's participation in these organizations, using examples of water user associations in South Asia, and presents evidence on the effect of gender differences in participation on the system management as a whole. Because of the lack of systematic research on gender dimensions of community organizations for irrigation and management of other resources, it is impossible to draw firm conclusions about the need for and impact of female involvement (or noninvolvement). This paper tries to draw out the main issues, and illustrate them wherever possible with empirical examples. The concluding section looks at ways to increase women's involvement in resources management organizations and highlights policy issues and critical areas in which further research is needed.

GENDER, COMMUNITIES, AND NATURAL RESOURCES MANAGEMENT

Households and Communities: Beyond the "Unitary" Model

The treatment of a community as a homogeneous group with common objectives parallels, in many ways, the "unitary models" of the household in economic literature. Both treat a social institution comprising multiple individuals as though it behaves as a single entity, by assuming that all members have common objectives, and that they pool their resources (see Alderman et al. 1995).

While a unitary conception of the household has value as a heuristic device and allows parsimonious formal modeling of behavior, it has come under significant criticism on empirical grounds, as findings from studies of income pooling or labor supply decisions are inconsistent with many of the model's underlying assumptions (Alderman et al. 1995). Applying unitary concepts of the household to policy issues therefore risks producing inappropriate recommendations. A number of studies have, for instance, found that women and men spend income under their control in systematically different ways, with women more likely to devote a high proportion of their income on food and health care for children. Increasing the income of one member of the household (often the male "head") does not automatically increase the welfare of all household members equally. For example, in the Mahaweli irrigation and resettlement scheme in Sri Lanka, Schrijvers (1984) argues that

> *the chronic undernutrition in the Mahaweli H area is a direct result of planning that cuts women off from their productive resources. It is of primary importance that women, who have to provide the daily food for children and other members of the family, have the means themselves to obtain sufficient food. . . . Research showed that only 35% of the net income of the male farmer (after debts were paid off) benefited the rest of the household.*

In contrast to unitary conceptions, there is a range of "collective" models of household behavior that deals with household actions as the outcome of negotiations among individuals (see Alderman et al. 1995). Using this approach directs attention to differences among members, especially with regard to bargaining power. The suggestion that women and female children "voluntarily" relinquish leisure, education, and food would be somewhat more persuasive if they were in a position to demand their fair share. It is the juxtaposition of women's lack of economic power with the unequal allocation of household resources that lends the bargaining power approach much of its persuasive appeal (Folbre 1986:251).

The gender analysis literature abounds with examples of how systematic, socially constructed patterns of differences between men and women affect the distribution and use of resources within households (see Haddad, Hoddinott, and Alderman, eds. 1997; Hart 1995). However, Agarwal (1997a) argues that leaving this analysis at the household level is incomplete, because it does not take into account the effects of the community on gender relations in the household, or vice versa.

Community Management of Natural Resources

As the literature on social stratification clearly demonstrates, there exist marked intra-community differences between subgroups (see Bendix and Lipset, eds. 1954; Dumont 1980). These differences apply not only to wealth, but also to norms and preferences and to power and interests. Thus, priorities for use of resources and style of management are also likely to differ, as are capacities and powers to defend those priorities.

The subgroups in communities are often defined along the lines of occupation, class, caste, or ethnicity. Gender cuts across these dimensions of intra-community differentiation and hierarchy. In terms of access to and control of resources, gender interacts with other aspects of socioeconomic differences, implying that women cannot be considered a homogeneous category in terms of their interests and needs. Because women are positioned within society according to a variety of different criteria, the interests they have in common as a group are similarly shaped in complex and sometimes conflicting ways (Razavi and Miller 1995). It is therefore difficult, if not impossible, to generalize about the interests of women. What is possible is the identification and analysis of how gender shapes and influences the possibilities, interests, and perceptions of men and women as regards natural resources management.

The ways in which women and men of different classes, castes, or ethnic groups use and manage resources can therefore not be a priori assumed or easily predicted. Men's and women's linkages to natural resources are rooted in their locally and historically specific material realities. This is why it is problematic to assume the existence of a "natural" (or essentialist) relation between women and nature, as some eco-feminists do (Shiva 1988) at other than symbolic levels. Furthering the understanding of the multi-stranded and complex linkages between gender equity, communities, and environment at levels other than ideology (Agarwal 1992) requires thinking across and beyond stereotype bipolar hierarchies which tend to oppose men to women and nature to culture, and should avoid essentialist notions of gender differences.

As in the case of intra-household analysis, the case for including attention to gender differences within communities depends on the extent to which patterns of resources control, decision making, or welfare outcomes are influenced by systematic differences between men and women. Even though there exists relatively little empirical information about these differences, theories about intra-household and intra-community differences do provide some indication as to where to start looking for them. Gender relations crucially influence both the structures of property and endowments with which people enter communities, and the structures of reproduction that govern domestic divisions of property and labor and thereby shape people's relationships to communities. Furthermore, community organizations affect women's access to and control over resources and decision making and welfare. Thus, whether the policy objective is to achieve more efficient and sustainable use of resources, or to promote equity and greater local participation and control, systematic power differences between men and women merit attention.

The links between gender and community have direct consequences for the efficiency and sustainability of natural resources as well as for the livelihoods of people who depend on those resources. The linkages become especially relevant for policies in the context of the current emphasis on devolution of resources management. As the state transfers responsibil-

ity and rights over natural resources—forests, pastures, fisheries, or irrigation systems—to local "communities," membership in local resources management organizations takes on an increasingly important role in determining rights over resources. Hence, it is critical to examine and be aware of who within the communities takes on the tasks, and who controls use, decision making, and the stream of benefits.

Although there is a growing body of literature on gender and property rights (see Agarwal 1994; Lastarria-Cornhiel 1997; Meinzen-Dick et al. 1997a; Rocheleau and Edmunds 1997; Zwarteveen 1997), much of the theoretical and empirical analysis has focused on gender dimensions of access to private resources. By contrast, the literature on common property resources has tended not to look at gender dimensions. For example, only 17 of the 529 papers presented at the International Association for the Study of Common Property meetings since 1990 mention gender or women in the title or abstract.

Devolution programs that vest rights or control over resources systems (including irrigation infrastructure) in local communities create (or recreate)[2] common property resources. Even though policy statements (e.g., ICWE 1992) generally use terms such as "participatory," "user-based," and "involving all stakeholders," little explicit and systematic thought and attention has so far been given on how to achieve these objectives, especially as regards women's participation. Even in the domestic water supply arena, where women's roles are well recognized, Narayan (1995) found that only 17 percent of the 121 projects reviewed achieved substantial levels of female participation. If control over resources is devolved to "traditional" institutions, these are likely to be male-dominated, and reinforce existing power relations.[3] Creating viable new "democratic" institutions is difficult and time-consuming, especially if they are to be strong enough to manage a valuable resource over a long period.

The literature on common pool resources management addresses the implications of heterogeneity of assets, as well as heterogeneity of preferences for collective management of resources. Although this does not deal specifically with gender issues, some of the issues raised may be applicable. Baland and Platteau (1996) argue that cultural differences in perceptions and norms and differences in interests in a resource are detrimental to local resources management, but differences in assets or power are not necessarily a disadvantage. The negative effects of asset differences are less if the stronger members have an interest in the resources and depend on the contribution of the less powerful for maintaining the infrastructure or enforcing rules, or if the links between the two sets of users are highly personalized and multidimensional. This would imply that strong differences between women and men in expectations and priorities are likely to be problematic. The multi-stranded linkages between women and men mean that intra-household negotiations affect the outcome of natural resources management at the community level, and that women will have more bargaining power for getting their needs met if men need women's direct or indirect contributions to resources management (Meinzen-Dick et al. 1997a). The extent to which women are able to meet their water needs through community or household institutions must, however, be examined empirically.

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[2]In many cases, the resources that are being vested in communities in devolution programs were originally local common property resources. The state had exerted a claim over those resources, and is now transferring them back to the communities (Agarwal 1997b).

[3]According to Wade (1987:230, cited in Baland and Platteau 1996) "corporate organizations, to be effective, should be based on existing structures of authority. In practice, this means that the council will be dominated by the local elite which is a disturbing conclusion for democrats and egalitarians."

Gender and Participation in Resources Management Organizations

There is a long history of women's involvement in local organizations. Moser (1989) identifies participation in community management work as part of the "triple role" of women (along with their reproductive and productive roles), and notes that this has formed the basis for many welfare approaches to women (e.g., mothers' clubs, provision of relief, or community services such as domestic water supply or health care), which treat women's organizations as an extension of their domestic roles. Other literature and efforts to organize women have focused on information and political empowerment (e.g., DAWN 1985).

The major types of women's organizations for production have been cooperatives and micro-credit programs, e.g., Self-Employed Women's Association (SEWA), India. Both of these deal with "enlarging the pie," or creating new assets. Women's participation in organizations with control over natural resources is more challenging (literally) because it deals with property rights over existing resources, especially natural resources. Instead of creating new assets, which is a positive-sum activity for members and does not threaten the rights of nonmembers, participating in the management of resources such as land or water can be divisive. For women, as for the poor, to formally claim a right to the resources and take an active role in their management will mean challenging the status quo.

At the level of policy formulation, there seems to be widespread consensus about the need to include women in community organizations for resources management and conservation. The Dublin Statement on Water and the Environment adopted:

> ***Principle No. 3—Women play a central part in the provision, management and safeguarding of water.*** *. . . Acceptance and implementation of this principle require positive policies to address women's specific needs and to equip and empower women to participate at all levels in water resources programs, including decision-making and implementation, in ways defined by them* (ICWE 1992:4).

Many projects and programs which involve the organization of community-based groups make explicit mention of their intention to guarantee some degree of participation of women. Contrary to the expectations raised by these policy statements, there exists very little evidence of explicit attempts to increase or improve the involvement of women. Most of the "mainstream" literature on natural resources management (especially irrigation) does not mention gender differences (other than in the form of the occasional obligatory statements that "more attention is needed") nor differentiate between male and female users. Much of what is available is in the form of project documents and "gray" literature. The "gender and environment" and "eco-feminist" literature does make frequent mention of women as resources managers, but this seems to be mainly based on the recognition of women as important users of natural resources. If management implies some kind of control over decision making and planning to achieve objectives, it is less likely that women will be, as frequently, considered "managers" (Jackson 1993).

Recognition of Women as Water Users

A first and crucial condition for enabling and questioning women's participation is the recognition—at all levels—of women as resources users and managers, and the acceptance of women's resources and management needs as legitimate. In the context of irrigation, and with the possible exception of female-headed farms, women often continue to be perceived as "helpers" of their husbands. Men are seen to best represent the water-related interests and needs of the household at the level of the community, and complete congruence of interests between men and women is assumed. These ideas are partly, and often implicitly, based on a representational division of the world into two clearly delineated spheres of activity, the public and the private. The paradigmatic subject of the public and economic arena is male, whereas that of the domestic arena is female (Goetz 1995).

In much of the South Asian irrigation context, these assumptions are not valid. Using water or irrigating is not confined to men; women do use water both for productive and for domestic purposes. In addition, women provide labor or other resources to the maintenance of irrigation systems, and they directly or indirectly benefit from the use of irrigation water. They do so mostly in their capacity as co-farmers, working in close collaboration with their husbands to cultivate irrigated crops on their husbands' (or "the family") plots. In such a situation, the nature of the needs of the husband and wife for water are usually quite similar: both want and need a supply of water that is adequate for successfully growing one or more crops a year. Differences of opinion and in preferences may nevertheless exist regarding the timing and timeliness of water deliveries, which are based on gender divisions of tasks and responsibilities or on different crop preferences.

Women often also use water for purposes other than irrigating the "main" crop, for instance for watering livestock or for irrigating the homestead or for domestic purposes (see Zwarteveen 1994 and 1997 for a more detailed description of gender differences in water needs). The number of women using water for irrigation in their capacity as heads of farms is reported to be steadily increasing in most South Asian countries (see Bhattacharya and Jhansi Rani 1995). Female heads of farms may have different water needs than male farmers, either as a consequence of a reduced availability of male family labor, or because irrigated agriculture assumes a different importance in the household's livelihood strategy.

Gender differences in water needs have not been widely documented. Nor is there much documentation about women's uses of water, or of women's involvement in irrigated agriculture. Increasing the recognition and legitimacy of women's water-related needs and interests, and of gender as a source of differences as regards those needs and interests, crucially depends on more information and on research to gather this information.

WATER USER ORGANIZATIONS IN SOUTH ASIA

Membership of Water User Organizations

Evidence from water user organizations in Sri Lanka, Nepal, Pakistan, and India shows that women's participation in these organizations is much lower than men's (see table 1). In all

Table 1. Female participation in water user organizations.

Country	Female members %	Membership criteria	Reference
Sri Lanka	15	Legal ownership or tenancy of irrigated land	Athukorala and Zwarteveen 1994; Kome 1997
Nepal	0	Cultural notions regarding gender roles	Pradhan 1989; Bruins and Heijmans 1993; Zwarteveen and Neupane 1996
Pakistan	0	Officially recognized "water users" on warabandi lists	Bandaragoda 1997
India	6	Legal ownership of land	PMU 1991; IRDAS 1993; Dalwai 1997

these countries there is low female participation in water user organizations despite high involvement of women in irrigated agriculture and agricultural decision making. In most cases, low female participation is also in conflict with official policy statements, which almost always claim that the involvement of all farmers or water users is the ultimate objective. The few documented cases of a higher female involvement in water user organizations either stem from women-only organizations managing groundwater pumps (van Koppen and Mahmud 1995; Jordans and Zwarteveen 1997) or are from areas where men were not interested or were absent (Jayasekhar, Karunakaran, and Lowdermilk 1992; Dalwai 1997).

The extent of participation—by men or women—in organizations for resources management is the outcome of two factors: rules for membership, which determine eligibility to participate, and the balance of costs and benefits to be derived from involvement, which influences individuals' decisions to participate. While membership criteria and incentives for participation have received attention in analyses of water user associations generally (see Ostrom 1992; Meinzen-Dick et al. 1997b), there has been much less attention to gender differences in either of these critical areas (Agarwal 1997a).

Formal and Informal Membership Criteria

The most easily recognized gender-based barriers to participation stem from membership rules which directly or indirectly exclude women. These either stipulate that only formal rights holders to irrigated land can become members (some Sri Lanka cases) or require head-of-household status to be eligible for membership, or sometimes a combination of both (Nepal). Since men tend to occupy these categories more often than women, most women are not considered eligible for membership. In the South Asian context, such formal criteria often appear to coincide with existing notions about the appropriateness of female participation in meetings. In dry zone irrigation systems in Sri Lanka, where legal cultivatorship is the membership criterion used, out of the limited number of women belonging to this group only very few actually do (actively) participate in the activities of the water user organization (Kome 1997:30).

Prevailing stereotypic ideas about the gender division of labor and about appropriate male and female behavior function as informal membership criteria. In Sri Lanka, Nepal,

Pakistan, and India, ideas that only men are farmers and interested in irrigation, along with the traditional male domination in public decision making are factors that underlie the absence of women in water user organizations (Bandaragoda 1997; Bruins and Heijmans 1993; Kome 1997; Zwarteveen and Neupane 1996). In addition, women are thought not to be capable of participating in meaningful ways (partly because they are illiterate) and they are assumed to be busy with other more appropriately female activities (Bruins and Heijmans 1993; Zwarteveen and Neupane 1996). Social norms prescribing women to confine their activities to a small geographical area (homestead, village or nearby fields) may also effectively exclude women from becoming members of water user organizations (IRDAS 1993).

In addition to these formal and informal membership criteria, the process through which new water user organizations are formed in management transfer programs is often gendered, partly as a result of preconceived notions of planners about who are to be considered users, and partly because of the organizing process itself. In Sri Lanka, the Irrigation Department initiated this process by contacting those farmers they already knew, whom they asked to inform and mobilize other farmers. Almost all the farmers known by the Irrigation Department were men, and very few of these men invited female farmers to participate. The fact that the first set of activities to be undertaken by the new organizations concerned rehabilitation construction work further decreased the chances for women to become involved, since construction works are considered typical male activities (Kome 1997).

Long (1989:240) observes that "the question of non-involvement should not be interpreted to imply that nonparticipants have no influence on the constitution and outcomes . . . . On the contrary, they can, as 'backstage' actors, have a decisive influence on strategies and scenarios." In spite of not being formal members or participating in meetings, women may play other roles in organizations, or in carrying out collective action. There exist a few documented examples of such nonformal ways of female participation. Pradhan (1989) describes how in the Bhanjayang Tar Ko Kulo in the hills in Nepal, women intervened in a conflict between head enders and tail enders about canal maintenance. In the Sreeramsagar irrigation project in India, women in one village organized themselves to remove obstructions in the canal and guard the water flow. This elicited the following comment from an old male farmer: "We have seen that nobody is bold enough to obstruct women and it has made things easy for us" (Rao, Hassan, and Shyamala 1991). A female farmer in another village in the same irrigation system played a leading role in settling water-related conflicts. In yet another village, women took the initiative to help their husbands to irrigate, by allowing them to guard the canals and procure the water while the women applied the water to the field. The *neerpaccis,* or common irrigators, in South Indian tanks are traditionally male employees of the water user association. In several cases, women have been seen carrying out the water distribution tasks, not as reerpaccis themselves, but carrying out the work for their husbands (field observations 1994). In Sri Lanka, wives of male office-bearers often assist their husbands with administrative tasks and secretarial duties (Athukorala and Zwarteveen 1994). Women may also be asked to clean meeting areas, and to provide drinks and snacks to participants (Weerakoon 1995).

Although highly anecdotal, these examples of management-related tasks and roles of women suggest that nonformal and less-recognized ways of participation in water user organizations may prove to be a promising area for further research. It may provide important entry points for identifying realistic ways to make water user organizations more gender eq-

uitable, while it may also shed new light on the determinants of the performance of organizations by uncovering management practices and decisions that have hitherto gone unnoticed.

Costs and Benefits of Participation

Just as membership criteria have formal and informal dimensions for men and women, so also the costs and benefits include a range of tangible as well as intangible factors that influence decisions to participate in the activities of local organizations. While the tangible factors may be easiest for outsiders to identify, other considerations can rank higher in local people's own decisions.

Because of their high domestic and productive workloads, the opportunity cost of time to attend meetings and do other work for the organizations is different, and often higher, for women than for men. Important in this respect is that it is not as easy for women to transfer some of their responsibilities to their husbands as it is for men to leave some of their tasks to their wives. Timing and location of meetings may also impose a higher cost on women than on men. In the Ambewela irrigation system in the hills in Sri Lanka, meetings are held at night to suit male preference. For women, it is highly unsuitable to go out after dark (Kome 1997). In another system in Sri Lanka (Parapegama), women do not like to go to the meetings of the water user organization because the meetings are held at the bar,[4] and usually end up with everybody drinking liquor. And, while most Sri Lankan men go to the meetings by bicycle, very few women own or ride bicycles, implying that it would take them much longer to go to meetings (Kome 1997). Similarly, formal training held away from the village or community and requiring an overnight stay imposes a higher cost (in terms of child care arrangements or family resistance) on women than on men.

Because of membership criteria and as a direct result of the process of organization, water user organizations in South Asia have often come to be historically and socially constructed and defined as predominantly male domains. For a woman to be able to actively participate in water user organizations implies challenging prevailing gender norms and practices, at both the household and the community level. It would involve a revalorization of female identity and work, rejecting norms and regulations which tie women to specific roles and it would imply struggling to occupy spaces previously reserved for men. As one Sri Lankan woman tried to explain the absence of women in the water user organization:

> *Women work hard in the field. They contribute more labor to the cultivation than men. However, we never try to challenge the men. We think they should retain their position as head of household. Traditionally, a man is seen as the decision maker in the household. This is not the case in reality, but still we allow them to go to the FO [Farmers' Organization] meetings in that capacity* (Kome 1997:14).

[4]It is not typical for Sri Lanka that bars are used as meeting places for farmers' organizations. Meetings are often held at temple grounds or community centers, which are socially accessible to women.

Also, the abilities and capacities needed for participating in organizations, and especially for office-bearer positions, may not be as easily identified with women as with men for a number of reasons. In Nepal, "Women ... referred to their illiteracy as a reason for not attending meetings; they were afraid that they would not be able to understand what was being said and thought they would have little to contribute" (Zwarteveen and Neupane 1996:9). Farmers (male and female) in Nepal also mentioned women's lack of negotiating skills and mobility as two factors inhibiting meaningful participation of women (Zwarteveen and Neupane 1996). On the benefits side, the prestige of participation in public fora, and especially of leadership positions in the organizations, may be valued more highly by men than by women (see Moser 1989; Agarwal 1997).

Whether women are willing to bear these costs and face these social risks will largely depend on their assessment of the effectiveness of the organizations and of formal participation in them as a means of achieving personal objectives, as compared to other means available to them. This calculation is illustrated by comments from a woman in the Parapegama irrigation system in Sri Lanka:

> *I never participate in the FO meetings. If I go there I have to spend about 2 or 3 hours, but if I stay at home, I can make 200–300 beedis.*[5] *Therefore I do not like to go. I will ask my husband what the officers said. It is better to be a member of the Death Donation Society*[6] *than be a member of the FO. The FO does not give quick benefits; we can cultivate without the FO. In addition to that, most people ignore the FO* (Kome 1997:24).

In the Nepal Chhattis Mauja system, which was built and is traditionally managed by farmers, women said that they never attend meetings of the water user organization because the meetings offer no opportunities for them to raise their concerns and needs. Many of these women perceive "stealing" water to be an easier solution than those offered by more formal channels (Zwarteveen and Neupane 1996).

In other cases, the fact that women benefit indirectly from the organizations even without participating directly may explain why they see no need to participate more fully and formally. In the Rajolibanda Diversion Scheme in Andhra Pradesh, India, "although women are not actively involved in the discussions and approval of the operational plan, all women are aware of it" (IRDAS 1993:27). The women also indicated that because of the meetings, they benefited from a reduction in conflicts over water and from information about when they would get water, which enabled them to plan their work in the house and the fields (IRDAS 1993:28-29).

That female nonmembers succeed in getting their needs met indicates that not all irrigation management decisions pass through the formal organization. Instead, the water user organization can be considered one of a number of coexisting and partly overlapping "do-

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[5]Beedis are local, inferior cigarettes. Making beedis is an attractive income-generating activity of young women with children, since they can do it at home.

[6]Death Donation Societies are savings societies. In principle, savings are meant to be spent for funerals. In practice, Death Donation Societies often also provide loans for consumptive or agricultural purposes.

mains of interaction" (Villareal 1994) in which decisions about resources management are taken. One such domain of interaction in which women influence water-related decisions and obtain services is the household. In almost all cases reviewed (women themselves indicated that) if they need anything specific to be said at water user meetings, they would either tell their husbands or try to send male relatives (often sons or sons-in-law). Likewise, many women indicated that they receive information about water delivery schedules and other decisions taken at water user organization meetings through their husbands or male relatives.

When access to irrigation services is negotiated within the domain of the household, it becomes subject to the quality of the intimate relations women have with their husbands, sons and sons-in law, or fathers. Women's success in obtaining services geared to their needs will partly depend on the extent to which their specific water needs are complementary to, shared with, or conflictual with those of their husbands and male relatives, and on their bargaining position in household interactions.

Another important domain of interaction regarding water decisions may be the "field." Many negotiations, struggles, and conflicts regarding water take place alongside the canals, and actual water distribution is often partly determined in this domain. Kome (1997) reports that in a Sri Lankan dry zone irrigation system, one's capacity to take water is in the first instance determined by the location of one's fields along the canals. In the second instance, water distribution follows the principle of "the survival of the fittest," reflecting existing power relations. Gender as one determinant of power also interferes in determining one's ability to obtain water. An example is provided by one woman located at the tail end, who after having unsuccessfully tried to obtain water a number of times (at night), decided to ask her brother to divert the water for her. She assumed that other irrigators would be reluctant to prevent him from taking water, since he is a man and can better defend himself (Kome 1997). Pradhan (1989) referring to hill irrigation systems in Nepal also mentions the ability to physically defend oneself as a factor which limits women's possibilities to take water in times of water scarcity.

Other domains of interaction which directly or indirectly (co-)determine women's access to and control of irrigation services may exist. Female networks (work groups as well as social groups) may be important, especially where male and female social networks are highly segregated. And in addition to domains, individual contacts with people (mostly men) in powerful political positions can be a significant source of power. Female farmers in both Sri Lanka and Nepal could very clearly identify the persons they would approach in case they had water-related questions or needs (Zwarteveen and Neupane 1996; Kome 1997). Maintaining good relationships with such people through regular courtesy visits and gifts may be an important mechanism for women to secure their access to resources.

The use of indirect means to obtain water resources is consistent with women's strategies for gaining access to other resources, such as land and trees (see Lastarria-Cornhiel 1997; Meinzen-Dick et al. 1997a; Rocheleau and Edmunds 1997). But as is often the case with gender differences in property rights, gaining access through such indirect means does not provide much control over the resources, or the ability to make decisions regarding their management. Relying on connections to access the resources, whether through male relatives, officials, or others, increases women's dependence on others; whereas independent rights to resources can raise women's standing and bargaining power. Nevertheless, these socially nuanced means of access are critical to actual patterns of resources use, and should not be neglected in research or policies.

To what extent women's needs are "defendable" in the different domains depends on their social and legal legitimacy. In the case of water needs, although the literature often refers to irrigation organizations as "water user associations," they tend to include only irrigators, and are concerned with water deliveries to field crops. Some of the uses of water by women, such as water used for irrigating homestead gardens or watering livestock, are likely not to be included in formal water distribution plans, and may thus not be considered legitimate in the domain of the water user association. In other domains (such as the household and field) the legitimacy of these needs may be greater, allowing women access to water for meeting these needs. In this respect, it is important to realize that women may have a vested interest in not being identified as users or farmers: claiming water as women (or mothers or domestic caretakers) may cause less resistance and be easier than claiming water as farmers.

In sum, looking at natural resources management organizations in some South Asian countries from a gender perspective reveals that the dynamics of resources management cannot be properly understood when limiting one's attention to the formal organization. The evidence also suggests that the lack of visible participation of women in the resources management organization cannot be construed as implying their lack of interest in the use and management of the resources, nor does it imply that women do not influence what happens within the organization. Water user organizations are only one of a possible number of domains in which decisions about the management of water are taken. Women's access to these other domains may be easier as compared to the formal organization, while their participation in these other domains may also be more effective.

However, the fact that women succeed in somehow getting their water needs accommodated does not imply that more formal participation in water user organizations is not desirable or necessary. Access obtained through informal means is not as secure, and control over water which is not sanctioned by democratically devised rules and principles is more prone to be influenced by unequal power relations. If devolution programs are to effectively transfer rights along with responsibility for water management to local communities, it becomes all the more critical to examine how those rights are distributed within the communities.

Implications of 'Nonparticipation' for the Effectiveness of Organizations

The lack of participation of a large number of the users in the management of irrigation would, at least according to the theories of participatory management, imply performance weaknesses in the organization, because of weaknesses in communication, representation, democracy, and accountability, which may lead to free riding, rent seeking, and corruption (Ostrom 1992). In one of the few studies to address this from a gender perspective, Zwarteveen and Neupane (1996) found that the all-male organization for the Chhattis Mauja system in Nepal faced difficulties in enforcing its rules on women. Female heads of farms in the head end of the system always took more water than their entitlements, while contributing less labor than they should. In other parts of the system, village irrigation leaders also mentioned water stealing by women as a problem which was difficult to solve because women were not members of the organization and thus could not be punished. Women did not steal water or "shirk" from contributing labor to maintenance only because of opportunism. Water stealing by women occurred partly because women had an interest in applying more water to the rice field than

would be needed for optimal crop growth. A slight increase in the ponding depth considerably decreased weed growth, and thus the time women needed to devote to weeding. As for contributing labor, formal rules and prevailing gender norms made it difficult for women to comply. Female labor contributions are valued less and there is even an official rule which stipulates that labor for emergency maintenance and maintenance of the head dam can only be supplied by men. Fear of being harassed by men and cultural restrictions on female mobility also impede women's ability to contribute labor (Zwarteveen and Neupane 1996).

For forest management, Sarin (1995) provides an additional example which illustrates that the exclusion of women from community management organizations may hamper the effectiveness of the organization. In this case, noninvolvement of women made it easy for them, especially those from outside the village, to continue to gather firewood in spite of strict regulatory rules set by the organization. In some communities 90 percent of the rule offenders are women. Male office-bearers find it difficult to stop these women, since they risk being accused of molesting them. As a result, the need for female participation in organizations is now accepted, not on grounds of equity, participation or democracy, but because women are needed to help the organization enforce its rules, or to stop other women from taking firewood. The irrigation association in Chhattis Mauja has not come to this point, but the problems of enforcing rules and contributions on head-end women may yet bring about such a change, especially if male migration increases the number of female-headed farms.

CONCLUSIONS: IMPLICATIONS FOR RESEARCH AND ACTION

The Case for Attention to Gender Differences in Community Water Management

As control over natural resources is passed from the state to local "communities," the stakes for involving women as well as men in the management of those resources are too high to ignore gender in analysis and implementation of devolution programs. As users of the resources, both women and men have interests, needs, and priorities in respect to their management. Natural resources management institutions need to take these into account to ensure the livelihoods, especially of the poor. As managers of the resources, women and men often have different knowledge, skills, and resources to offer. Natural resources management institutions will be better able to manage the resources sustainably if they tap these diverse resources. At a minimum, sustainable resources management requires that the institutions will need to ensure the compliance of all users. Given the difficulty of monitoring and enforcement in the management of resources, it is likely to be easier to ensure compliance by women if they have a say in the setting of rules. This increases the likelihood that the rules are consistent with meeting women's needs, that women will know what the rules are, and that they will abide by the rules and enforce them. This paper argues that explicitly addressing the challenge of female participation in community water management organizations is likely to lead to better and more equitable devolution policies.

Increasing Women's Participation in Water User Organizations

Although female users may participate in less-visible and less-formal ways, and although women may sometimes succeed in getting their needs met without being formal members of community organizations, this does not imply that it is not worth attempting to make more formal provisions for women's participation. Just as formal control over private land and resources can strengthen women's bargaining power within the household, a formal claim over communal resources (and the institutions for their management) can strengthen women's position in the household and the community. Although not all women have the same water-related interests, and although those interests are difficult to determine in advance for any category of women, it is in the interest of all women to build up a concrete "controlling presence" over the way in which water is distributed and canals are maintained.

In South Asia, more formal participation of women in organizations will not happen automatically and cannot be left to local communities. External pressure, guidance, and intervention will often be required, and explicit policy support is crucial. Attempts to improve female participation have to be backed by strong financial, technical, and legal support. A major problem with externally applied regulations is that this approach appears to be at odds with objectives of local control. Yet upon closer examination, most devolution programs impose many external conditions upon local management organizations: a variety of requirements for registration, auditing, bylaws, and activities if the organizations are to be recognized by the government or receive external assistance. If these can be imposed for the government's convenience, or to ensure fiscal viability for the maintenance of the resource base, interventions can also be made to ensure gender equity.

Existing knowledge points to some possible ways to enhance female participation. A first step involves the definition of membership rules: instead of allowing one member per household, both male and female members of households could be considered eligible for membership. Although simply ensuring women's membership or removing the "entrance barriers" for women is important, this in itself does not guarantee women's equal and meaningful participation. "Integrating" women into existing organizations may not work if it implies that women have to adapt their behavior to existing rules. They may learn to win, but this will often be at the cost of bringing their "different" perspectives into play, as when overachieving women managers become "sociological males" (Goetz 1995). The project of "gendering" community organizations goes beyond integration: it is an inherently transformative project in that it should be oriented to routinizing gender-equitable forms of social interaction and limiting the possibilities for choosing discriminatory forms of social organization. In this regard, it is important that very explicit and focused attempts to reach and mobilize female members are made early in the process of devolution. Once water user organizations have come to be established and defined as "male" organizations, it will be much more difficult to remove and overcome gender barriers, biases, and inequities.

What such a transformative project entails in practice will very much depend on local specificities. It will require efforts to determine whether and how needs and interests with respect to the use and management of water are gender-specific. If women have specific needs these should be publicly recognized and supported so as to increase their visibility and social legitimacy. Because needs, and the perception of needs, are likely to be gender-specific, the motivation of individual users to participate is likely to also be influenced by their gender.

Women may, for instance, be more interested if their participation is explained and interpreted as a logical extension of their socially accepted roles as mothers and wives, whereas men may become interested if participation contributes to their perceived male roles as public decision makers.

Attention needs to be paid to such details as the timing, location, and structure of formal meetings, which should reflect the importance of women's participation and allow for their opinions to be taken seriously. Care should, for instance, be taken that seating arrangements do not mirror power hierarchies, with chairs for important men and stools and mats for those who are less important (cf. Sarin 1996). Identifying a public site where it is socially acceptable for women to meet with men, and a time that does not conflict with their domestic or productive activities is critical.

It is not only the traditional way meetings are conducted or users are organized that restricts women from participating, speaking, or being listened to (Agarwal 1997a; Hobely 1991). Even many "participatory" approaches to eliciting community objectives (e.g., discussion groups, transect walks, mapping exercises) may place barriers on women articulating their interests and needs (Mosse 1995). Parajuli and Enslin (1990) found that functional literacy training can be instrumental in overcoming women's own feelings of incompetence and inhibitions to speak up at meetings in Nepal, and this is likely to apply to other areas in South Asia where there is a large gender gap in literacy, and where literacy has become an important indicator of an individual's abilities to "deal with the outside world." Increasing women's experience with meetings in other types of organizations may also increase their confidence and ability to participate. In India, Bangladesh, and Nepal, separate women's organizations have been identified as one successful strategy to empower women both within households and within communities. Being organized with other women breaks women's isolation, brings them into contact with outside agents and markets, and increases their visibility. Through their own organizations, women may become more visible at the community level as well (especially through group linkages with markets and other institutions outside the community), and community decision making processes may begin to alter their male-oriented practices and include women and their concerns (see Carr, Chen, and Jhabvala 1996 for examples).

Research on Gender and Water Management

There has been relatively little empirical research on how gender, along with other differences, affects collective action for natural resources management. To develop more sustainable and equitable policies for devolution of resources management, we need more consistent information about men's and women's formal and informal strategies for accessing and managing the resources, and the factors which influence those strategies.

Several types of research are required. Because many of the ways in which women participate in water resources management are not seen in formal meetings, in-depth, qualitative research is required to understand their roles and strategies. Information about uses of water and involvement in decisions needs to be complemented with an understanding of the norms and perceptions that surround these uses and decisions. Participant observation methods, which involve spending time with people, and in-depth individual interviews, can help identify how women and men access water, and what types of collective action they are involved in, especially "behind the scenes." Focus groups and individual interviews can elucidate the patterns

of who engages in different types of behavior, and the motivations of different actors. It would be useful to build on the growing body of intra-household studies to examine how relationships within the household influence women's participation in community institutions, and vice versa. Interviews on norms are also important sources of information on the implicit water rights of different groups, as well as on gender-based barriers to participation.

A second type of research is required to identify the conditions under which different patterns of participation apply. Individual case studies are valuable sources of insight, but comparative research allows us to look at what factors affect behavior, and address basic questions such as:

- Why are gender differences in participation greater in some places than in others?
- Under what conditions will intra-household negotiations be sufficient to meet women's water needs?
- How does male migration (or changes in cropping pattern, or any other type of change) affect women's participation?
- How do different forms and levels of female participation affect organizational performance?

The challenge of comparative research lies not only in specifying the factors that are likely to influence gender differences in participation, but also in finding ways of consistently capturing both the formal and informal involvement of men and women in water resources use and management.

Finally, to identify intervention strategies that can improve women's ability to meet their water needs through local institutions at the household and community level, there is a need for documentation and evaluation of a variety of programs in this field. Documentation of procedures and success stories is a first step, but it is also essential to include information on the socioeconomic conditions under which they took place. Evaluations of programs that were not successful, or those which achieved some objectives and not others, can be equally informative for developing programs and policies that are appropriate for different local situations.

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