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**Why is it so Difficult to Tackle Gender in
Water User Associations?
--A Case Study from Gansu, China**

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Why is it so Difficult to Tackle Gender in Water User Associations?

–A Case Study from Gansu, China

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Abstract: The increasing competition for, and scarcity and degradation of, water resources coincided with the emergence, spread and institutionalization of participatory processes, leading the World Bank to import the concept of the Water User Association (WUA) into China in 1994 to promote participatory irrigation management. The assumption was that everybody in the community could have an opportunity to participate and to benefit through participation and partnership in water management. However, emerging evidence from the field shows that this is not the case. Gender and social difference in power and influence, sources of problems in complex rural society, are active in the WUAs.

This paper examines the reasons Water User Associations failed to integrate gender as a fundamental variable in participatory management. It relies on both literature and recent fieldwork in Mingtian County, Tianma Municipality, Gansu Province, China, to show that this interference with progress towards gender equity can be traced to the current, dominant focus on its biophysical aspect, to a male domain and discipline, to a narrow professional culture of natural resource management, a top-down system, a gender insensitive context, and to the intrinsic shortcomings of participation and the failure to recognise power issues in general. These shortcomings not only call for institutional change, but also for a change in the attitudes and behaviour of water management staff, technicians and professional, who need to be equipped with gender and participation awareness and knowledge, and for a creation of bottom-up system and gender sensitive context.

Keywords: gender, Water User Association, China, participation, water resources management, Asia

Introduction

The availability of water is one constraint for agricultural development in China. Irrigation management is crucial to using water resources effectively and efficiently for agricultural development and ensuring food security. Different ways to sustain water use and irrigation

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engineering have been explored by scientists and engineers internationally. One practice is to allow water users to participate in irrigation management by handing over some or all irrigation rights and responsibilities to water users (Wang 2007). This idea of participatory irrigation management was promoted by the World Bank, which brought the Water User Association (WUA) concept to China in 1994 as a response to local water problems. A Water User Association is meant to be an autonomous organization and is assumed to empower local people to participate in water management. It promotes the idea of partnership between the Water Resource Management Department and local communities: the Water Resources Department transfers some responsibilities for water management to the Water User Associations, which are composed of community members who elect a committee of executive members and representatives to run the committee. All over China, in villages where WUA exist, all households are members.

The WUA model is built around concepts of participation and partnership (CIDDC and SACDO 2007). The underlying assumption is that everyone in the community will have a chance to participate and benefit, with participation ensuring that the specific needs and concerns of women and men from all social groups are taken into account in water resources development, use and management, leading to the goal of fair, equal, effective, efficient, and sustainable water resources management. However as studies have shown, participatory management may not work well. For example, studies in which focused on such groups in the forestry sector and more specifically social forestry have demonstrated that participatory forestry has not provided participation and benefit to all people, including women and the poor. The specific needs and concerns of women and men were not taken into account in sustainable forestry resource management in fact. Social forestry has been shown to be a gender-blind and socially blind approach (Buchy and Subba 2003).

This idea behind the present paper came from reading the work of Buchy and Subba (Buchy and Subba 2003), and their framework is used in the analysis in this paper. Buchy and Subba examine the gender-blind and socially-blind nature of community forestry by examining four aspects: the degree of biophysical focus, the skewness of professional culture, the costs of institutional participation, and local power structures. These four aspects also relate to water resource management, and so this paper examines whether Water User Associations share the same reasons and means to ignore gender issues.

Rural communities are complex entities, and their relationship with natural resources is more complex and entangled than is often acknowledged (Buchy and Subba 2003). Rural communities are much diversified and heterogeneous societies, with women more disadvantaged in the distribution of access to natural resources (Agarwal 2001). Within them, the potential for

participation of different groups is not equal. Thus, although social equity has been recognized in policy documents at international level, the right to participate is not equivalent to the exercise of that right. This means that the devolution of natural resources management responsibility from the state to the local organizations does not necessarily lead to greater participation and empowerment of all stakeholders.

Thus while the equal participation of women and men is widely recognized as a first basic attribute for achieving effective water governance and the participation of women in local water governance is seen as necessary for achieving sustainable management of water resources in international communities (Singh 2006), women's role in irrigation has long been ignored. One common assumption regarding irrigating farmers is that they are predominantly men, which leads to another assumption that farm household resources and labour are effectively controlled and allocated by the men in the households (Upadhyay 2003). Women are treated as simply domestic water users, and men as irrigators and thus, as described by Goetz (1995), men are the paradigmatic subjects of the public and economic arena, whilst the domestic arena is female (Goetz, 1995 in Meinzen-Dick and Zwarteveen 1998). In reality, women use water both for productive and domestic purposes. Women also provide labour or other resources to maintain the irrigation systems and benefit from the use of irrigation water directly and indirectly (Meinzen-Dick and Zwarteveen 1998).

However, given women's involvement in irrigated agriculture and agricultural decision making, their participation in water users' organization is very low (Meinzen-Dick and Zwarteveen 1998; Hussain 2007). The most frequently reported reasons for this low participation in irrigation management institutions are rigid norms, cultural traditions, women's high reproductive loads, female illiteracy lowering their self-confidence and capacity to participate, and meeting times and locations unsuitable for female participation (Hussain 2007).

It is reasonable to expect that increasing water shortage and scarcity will affect women and men differently, given the unequal power between them. Gender differences and inequalities mean that men and women experience changes in water availability, services or water policies very differently. Patterns of resource control, decision-making, or welfare outcomes are influenced by systematic differences between men's and women's social roles (Meinzen-Dick and Zwarteveen 1998), and women and female-headed households are usually marginalized.

Poor and female-headed households in China tend to have less land, lower quality land, or plots located at the end of the irrigation canal which is more difficult to irrigate, and at the same time, such women rely more on agriculture to make a living because they do not have surplus labour that can migrate to work elsewhere and repatriate earnings. These women are prevented by particular gender ideologies (expressed in the shared norms, values and vision in the

village) from actively participating in the type of collective management and decision making found in other countries in Asia (Molen 2001). Instead, rural Chinese gender ideology excludes women from the Water User Associations. Many women see their role as limited to the private domain of the households, rather than in the public, decision-making domain.

With the increasing water shortage and scarcity, the tendency to exclude women and the poor, as disadvantaged groups, from water use and management will become stronger in the future. To prevent women and the poor from being excluded from water use and management will require addressing the gender issues of sustainable and effective resource management, and so it is worthwhile to explore the extent to which WUAs really facilitate participation by all people, including vulnerable groups like women, in water resources management in China. It will be interesting to see whether global gender issues hold the same truth in China, given that China is not a colonized system and has a history of 30 years of socialism; it is so different culturally and politically.

There is much research on gender and water user association elsewhere (Karim 2006; Meinzen-Dick and Zwarteveen 1998; Upadhyay 2003), but this has not been much studied in China (Wang 2007). The differences between women's and men's needs and priorities related to water resource use, the barriers women face to achieve control over resources, especially within local organization, has been paid less attention to in China and limited work has been done in the Chinese context. There is limited literature about women's participation and the factors that limit women's participation in water management in Chinese WUAs (Wang 2007). This research provides empirical evidence on gender and Water User Associations and reasons why it is difficult to tackle gender in Water User Associations from China, examines the reasons why Water User Associations have failed to integrate gender and social dimensions as fundamental variables.

Water shortage and management of irrigation engineering are a big challenge for sustainable development. In Mingtian County, Gansu Province, where this fieldwork was conducted, the situation is especially severe due to water shortages, overuse of groundwater, high salinity of ground water, and desertification (Yang et al. 2002). Surface water is decreasing 0.1 billion m³ every year. The water table now drops 0.5-1 meter each year and has done so for the last 20 years (Lu 2008). This is threatening the local way of life, and the government has encouraged

migration and resettlement elsewhere to reduce the pressure of population on the environment; the county government plans to move 100,000-150,000 people (the population was 307,200 in 2004, with a male to female ratio of 1.06:1) between 2006-2026. More and more people are already migrating to other places, and these out-migrants are overwhelmingly males travelling alone: by 2004 more than 80% of migrants were males who had left either alone or with their families for work elsewhere, while most of the 20% of migrants who are female migrated as part of whole families. This has further skewed the gender balance (Lu 2008).

The decrease of water levels, the degradation of water quality, together with the introduction of associate policies like well closure, the reduction of cultivated land, greenhouse development (MCWRB and MCLB 2007) in Mingtian County have a greater impact on female-headed households and women, because women rely greatly on agriculture to make a living, while the labour of more and more men has become mobile and moved beyond the village (CIDDC and SACDO 2007).

Women (and particularly poor women) are finding it increasingly difficult to cope with this migration. This is reinforced by the ongoing process of feminisation in agriculture that is evidenced quite strongly in northern China². As the price of water has increased, and water quotas have been introduced, the poor, female-headed households and women have seen their income decrease because they have to reduce irrigation and thus abandon arable land.

The fieldwork around which this paper is based was done in two Chinese Han villages, Village Z and Village W, in Mingtian County, Tianma Municipality, Gansu Province³ in August, 2007. The methodologies used to collect data were: (1) review of literature and secondary data including WUA Constitutions, Election method of farmer's WUA, meetings records, etc., for each village and Mingtian Water Resources Bureau; (2) discussions and interviews with the (6 male and 1 female) officials in the water resource department in Lanzhou, Tianma and Mingtian; (3) interviews with 2 male WUA director or deputy directors in Village W and Village Z; (4) two focus discussions with (10 male and 1 female) WUA executive members and representatives and four focus group discussions with 20 male and 23 female participants in men's and women's groups in Village W and Village Z; and (5) household interviews with 14 households composed of poor, average and relatively well off households. A workshop on training needs assessment

² Personal communication with Professor John Taylor by email on 02 April 2008.

³ The main problem in Gansu (a greater problem than for WUAs in other provinces) is that the WUAs are being introduced in the interests of water saving (whether this is surface or ground water). This, together with the introduction of accompanying policies such as well closure, land reduction, and greenhouse development makes the situation in Gansu different from other areas. This needs to be acknowledged (Thanks for the personal communication with Professor John Taylor by email and this is his comments 02 April 2008).

was conducted with 5 male and 1 female officials in Mingtian Water sector and 4 male and 2 female representatives from the two Water User Associations.

The populations of the two villages total 3437 people⁴. The number of households is 825, in which 22 are female-headed households. Poverty is defined by the interviewed villagers as two kinds of households: households in debt due to supporting children in middle school or collage, and households which lost labour ability due to old age. In total there are 197 poor households. About 20% of the male-headed households are poor and 100% of the female-headed households are poor (Zhang and Wang 2006).

The first section will present the gender situation, including the ways in which women and the poor are excluded from Water User Associations. The second section will focus on inbuilt limits in the formal participatory process. It seems that the current dominant focus on the biophysical dimension, a male domain and discipline, a narrow professional culture of natural resources management with a top-down system and gender insensitive context, and the failure to address power issues all interfere with meaningful progress towards gender and social equity. There is need for change that goes beyond institutional adjustment.

In this paper, 'gender' refers to the socially constructed roles and responsibilities of and relations between men and women, and 'gender blind' to policies and organizations that do not take into account the different gender roles and responsibilities of women and men, and recognize no distinction between both sexes, with assumptions incorporating biases in favour of existing gender relations (MLG 2003).

Gender differences will be revealed in the extent to which patterns of water resources control, decision-making, or welfare outcomes are influenced by systematic difference between men and women. Thus, community organizations have a gender dimension where they affect women's access to and control over resources, decision-making and welfare. Gender issues are revealed when the relations between men and women, their roles, privileges, and positions in the patterns of water resources control, decision-making and welfare outcomes are identified and analyzed.

Gender Roles and Gender Needs

It is widely recognized that men and women play different roles and responsibilities and have different needs and priorities (Buchy and Subba 2003). Within different culture and different

⁴ There is no proportion of male and female available.

ethnic groups, these roles and needs also differ. In general, in rural areas, men are in charge of the public domain and women are in charge of the private domain.

Traditional Chinese culture prefers sons to daughters. It promotes the idea that ‘Men are superior to women’ (*nanzun Nvbei*), values men above women (*zhong nan qingnv*) and discriminates against women. The divisions between men and women are obvious. ‘Men deal with external affairs, while women deal with domestic affairs’ (*nan zhu wai, nv zhu nei*). Buddhist culture has also influenced mainstream ideas, imposing specific socio-cultural norm on the different. Since 1950, The local mix of ideas has also included Chairman Mao’s, advocating equality between men and women: ‘women hold up half the sky’, ‘woman can do what man can do’, and ‘man and woman are equal in the new era’ (Lu 2008). However, this equality referred more to equal work. The Constitution of the People's Republic of China clearly stipulates, “Women enjoy equal rights with men in all spheres of life, political, economic, cultural and social, including family life...The state protects the rights and interests of women....” (CPGPRC 1982). But the emphasis was more understood on the physical side and the masculine side, i.e. meaning that women could do the same jobs as men. Women were encouraged to behave like men and the biological differences between women and men were ignored. In recent years, since the opening economy policy, gender equality has been improved. However, discrimination against women especially at birth, in education, employment, retirement and public decision making spheres persist. In the following analysis, I attempt to highlight the major characteristics of the relationship between gender and natural resource management in the study area.

Who Does What?

In the two villages, gender roles are fairly well-defined. Women are responsible for domestic work, childcare and parenting. At the same time, women are involved in all agricultural activities (as are men) except ploughing (which is considered men’s work). As an increasing number of men migrate for work, especially in village W, women’s responsibilities and roles both in agriculture and domestically are increasing and changing, and this impacts on their water use. The focus group discussions and household interviews showed that women currently do 20% (in Village Z) to 50% (in Village W) of irrigation work (such as irrigation and, maintaining the irrigation system) and are responsible for more than 90% of domestic water use, 10-20% of water fee payment, and 80-90% of financial management at home. In a little less than 20% of households, only women do the irrigation and water management (Zhang and Wang 2006). Both men and women participate in canal building, canal maintenance, removing pumps from wells after irrigation, and watering animals. Women who are responsible for the management of

domestic water are in charge of water for domestic use, cooking, washing, cleaning, feeding animals and watering household vegetable gardens.

With desertification, the degradation of water quality and the increasing salinity of groundwater, reaching more potable, good quality drinking water, has become more difficult. Men (helped by women) fetch safer good quality drinking water from longer distances using horse-drawn carts, except in female-headed households⁵, where the women carry out all tasks. As more and more men are out-migrating for work, women are the one who are left behind in rural areas to bear the deterioration of water and environment degradation most, and they are the one who are the hardest and the earliest hit by water shortage and deterioration (UNEP and WEDO 2004).

However, according to the interviews with women, fewer than 30% of the WUA meeting participants are women, and the few women who do go to meetings have special circumstances. They may be widowed, single, or have migrant husbands. This attendance will not be regular, as widows and female household heads say they do not have time to attend meetings. Even when women do go to the meetings, they tend to sit in a corner or in a hidden place and to keep quiet. Men dominate the meetings and any decision making. Even though women are playing an increasing role in agriculture, men still play a dominant role in rural decision-making. Women are seldom involved in water management, consultation and decision-making. Women are water users, but not decision-makers. Many women have to call their husbands to come back to attend meetings related to water use, to make water use plans and to deal with irrigation. This brings delay in water use and ineffectiveness in water management.

Who has What?

In the rural China, males are automatically the household heads⁶, by administrative convention. Women can only be registered as household heads when there is no adult male or the male has a 'permanent or formal' job (i.e. he is registered elsewhere), or the husband in the households is married in from another place. Household heads are also the owners of the land and their names are on the household registration certificates and on WUA membership certificates. Women have access to land and water resources through marriage.

In these villages, many women have taken control over the financial affairs of the family to curb male spending on smoking and drinking. Men are mostly the ones who spend money for

⁵ Female-headed households mean households with female registered as the household heads due to lack of adult male members, or male members being formal or permanent job members, or married-in male members defined by local village leaders.

⁶ Household head is defined as a person who is registered as the head of a household by local village leader and who plays a decisive role in household affairs.

shopping. Decisions on everyday expenses are often made jointly within the household. Men tend to make decision on big items such as buying television sets, production goods, or other big goods, and women are more frequently responsible for decisions on buying daily necessities and clothes. Because women are usually married into the husbands' households⁷, they are unfamiliar with village members and the situation in the husband's village at the start of the marriage, and thus will have a weak social network in the village. Many women are identified by reference to the husband e.g., Zhang San's wife. This can set barriers in their interactions with other villagers and when they try to access natural resources. Women tend to have fewer assets; most assets will belong to the husband. This affects women's social status in the husbands' villages and strengthens men's status as members of the household-based primary social group and household heads. The differences in settlement patterns reflect power relations within the marriage and households (Gao 2000). They decrease women's bargaining power both within the household and in the wider community (Agarwal 2001).

Who needs and wants What?

To address this situation of gender inequity, especially barriers/difficulties that prevent women from participating in water resources management, training needs assessments were conducted in August, 2007, in the study area with the staff from Mingtian water sector and representatives from the two WUAs. This needs assessment showed that women tended to have low levels of education and knowledge, narrow experience, low capacity, were dependent on men, and lacked self confidence in water management. Housework is a women's responsibility, and there is no women representation in WUA (Lu 2008). This assessment also showed that men mostly use water for agriculture, while women use water both for productive and domestic purposes as shown in the literature (Meinzen-Dick and Zwartveen 1998).

The focus group discussion showed that Differences exist according to the gendered division of tasks and responsibilities or according to different crop-related preferences regarding the timing of and timeliness of water deliveries. The fieldwork shows that the wider socio-economic issues influence men's and women's water needs differently. For example, while men mostly use water for agriculture, women use water both for productive and domestic

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In rural China, it practices "men marry and women marry out" (*nanqu nvjia*). The traditional Chinese family is patrilineal. The custom is for women to marry out from their parents' families into and live with the husbands families in the husbands' villages after marriage. It is called "patrilocal residence" by anthropologists. It is considered that as women marry out to leave their villages and live in their husbands' villages, they have left their familiar environment to live in new and strange villages, it is a kind of deprivation for women of their familiar things and environment they depend on (Gao, 2000). Only when a household does not have a son and has daughters and, then this household will marry in a man to one of the daughters who stays at home with her parents in the village. The married in son-in-law (*shangmen nvxu*) is usually the one who does not have parents, or have many brothers, or his family is relatively poor, so he is willing to marry into the woman's family.

purposes. Women prefer to have water delivered in the daytime, both because it is unsafe for women to go out to irrigate at night and because women have children to care for at night. For men, water can be delivered at any time. Women said that they also needed water for domestic purposes such as cooking, washing and cleaning, and for watering livestock and irrigating kitchen gardens.

Women in female-headed households also have different water needs than women in male-headed households, both as a consequence of reduced availability of male family labour, and also because irrigated agriculture assumes a different importance in these household's livelihood strategies (Meinzen-Dick and Zwarteveen 1998). Female-headed households and poor households tend to rely more on agriculture to make a living, and need more water because they do not have remittances from out-migrated male labour.

The training needs assessments made it clear that women and men express differences in the area of knowledge needed. Men tend to want more knowledge about agricultural technology, high yield varieties, water saving crop introduction and plantations, soil testing and fertilizing, water saving and water management. Women tend to want more knowledge about high yield varieties, water saving crop introduction and plantations, water saving technology, livestock husbandry and baby care.

These gendered differences were also shown in the different expectations that women and men have regarding water and participation in water management, and in their different priorities for the WUA. Men expect more water for irrigation, the building of more canals and the introduction of water saving crops. Women expect easy access to good quality drinking water and more water for domestic use (Lu 2008). Women also raise the question of improving drinking water access and having tap water, because nowadays, it is inconvenient for them to fetch drinking water.

Government officials, policy makers and project officers need to be sure that both men and women's needs are clearly identified and taken into account during training needs assessment and in the preparation of the water management work plan, and to be aware of the difference between satisfying the practical gender needs (improving women's condition by improving access to water, making a practical difference to their lives) and strategic gender needs (improving women's position by creating opportunities, like taking part in decision-making in water management to improve their social and economic status) (Klugman 1999; Moser 1989). The extent to which policies reflect these differences is a good indicator of whether they are gender neutral or gender sensitive.

Policy and gender roles

The UN Conference on Women held in Beijing in 1995 emphasized the need to integrate gender perspectives into legislation, public policies, programmes and projects, and participating governments undertook to carry out a comprehensive platform for action intended to ensure “that a gender perspective is reflected in all our policies and programs”, and recognized gender mainstreaming as the principal means to achieve this objective.

Despite obvious gender differences in the access, control and use of water resources, both the earlier version and the revised version of Water Law of the People’s Republic of China have been silent on gender issues. There is no mention of gender issues, women’s roles, or women as a disadvantaged group in The Water Law of The People’s Republic of China, 2002 (MWRPRC 2002). The Regulations for Water Abstract and Water Resource Fee Collection Management stipulate that water for productive agriculture within the water quota is exempt from water resources fees. It also stipulates that the water resource fee for agriculture should be lower than the water resource fee for other purposes, and that the water resource fee for grain crops should be lower than it is for cash crops (MWRPRC 2006). This can be interpreted as protecting the needs of poor women and men in a practical sense. However, it does not ensure poor women and men can access water to irrigate their home vegetable gardens, which is one of their more important uses of water to provide otherwise unobtainable food for household use and a small amount of income. The Methods of Water Resources Fee Collection in Gansu Province” (*gansu sheng shui ziyuan fei zhengshou guanli banfa*) (The Methods, in short) mentions that the an 'extreme difficulty enterprise' (meaning an enterprise with economic difficulty) can ask the Water Administrative Department (and the same level Economic and Trade Commission which collects the water resource fee) to reduce, postpone or waive the fee. The Methods also sets the water resource fee for agricultural irrigation lower than for other water uses (GPBWR 2003). In a practical sense, this protects the needs of poor women and men, or vulnerable people and thus it appears that The Regulations of Gansu Province on Shiyang River Basin Water Resources Management is showing its concern about the impact of this regulation on poor and vulnerable households and on women. However, it has not been seen as a legal issue. The regulation says that “in the Basin, if closure of wells and farmland returning to forests or grassland leads to reduced yields and revenues, farmland loss or the migration of farmers, the People’s Government at all levels shall take active measures for resettlement and compensation” (GPBWR 2007). This assumes that everybody will be affected in the same way. It does not consider the situation of poor women and men. Poor women and men actually are more affected by well closure and cultivated land reduction, because they rely more on agriculture and water resources.

A review of the Organic Law of Villager’s Committees of the People’s Republic of China indicates that there should be quotas to ensure that there is an appropriate percentage of women

among the Villager's Committee members, and that in multi-ethnic villages there are members from minority ethnic groups. The law recognizes women and ethnic groups as disadvantaged and provides for their compulsory inclusion in Villager's Committees. It does not say how much an appropriate percentage is. However, item 21 stipulates one person can be recommended from every 5-15 households (MCAPRC 1998). When only one person is recommended, in male dominated society in China this will seldom be a woman. All of these policies and documents fail to indicate how gender issues can be addressed strategically. Few of them recognize women's roles or women as a disadvantaged group, or specify or imply policies to address women's roles and needs explicitly. No strategic gender issues have received any attention in these policies and documents.

Water User Association in China

In 1994, when the World Bank imported the concept of Water User Association (WUA) to China, this was to promote participatory irrigation management in China, and to involve rural communities in water use and management in a more equitable, fair, effective and sustainable way, yielding better water management. This transferred irrigation management responsibility from the state to the villages, to local water groups; by the end of 2006, 30,000 water user associations had been established in China⁸. The structure of the WUAs is based on several assumptions, including that water is not effectively and efficiently used and that it is wasted because local farmers are not sufficiently involved in water management. WUA leaders and executive members are elected by villagers, because it is assumed that if villagers can participate in WUA, water will be better managed. However, the concept of the WUA is coming from outside the community: the upper level government, to set up a WUA without or with limited capacity development. Thus the shift in China's water management institutions shows that local communities are following policy directives that are being developed by and issued from upper-levels of government. When the local leaders set up their organizational frameworks in the villages, practice is sharply different from theory (Wang et al. 2005).

The WUA constitution (MCWRB 2005b) and farmer WUA election methods (MCWRB 2005a) are gender neutral, meaning there is no mention of women and the poor as disadvantaged groups requiring attention, nor is there any suggestion of increasing the participation of women and the poor through compulsory membership. According to the WUA constitution, the election is based on water user households, and 'all water user household heads are the members of the association' (MCWRB 2005c, 2005b). The 'Village Water User Association Constitution' (MCWRB 2007) simply says that 'each water user group uses democratic recommendation or

⁸ There are no figures on women's and men's participation in WUAs in China overall available.

democratic election to produce member representatives through member meetings attended by all members. At Villager's Group level, household heads are usually required to attend meetings. Since the household heads are mostly men, when there is a Villager's Group meeting, men always predominate. When the male household heads are unavailable (e.g. working away from the village) or there are female-headed households, then women attend meetings. Otherwise women seldom go to meetings. The fewer than 30% of women who have ever attended meetings are widows, or single, or their husbands were unavailable. The WUA constitution (MCWRB 2005c) and the 'election method of farmer water user association' regulations (MCWRB 2007), state that 'In principle, the director of WUA is also the director of The Villager's Committee'. Item 12 in 'Water User Association Constitution' says 'Deputy directors should be nominated by the director and then voted by executive members' (MCWRB 2005c). It also says that the 'Water User Group leader in principle should be the Villager's Group leader or elected by group members' (MCWRB 2005c). In practice, even if elections are held, the Villager's Committee directors and Villager's Group leaders are usually the ones who are elected, and they are nearly always male. In most cases, the WUA executive committee is the Village's Committee itself, so Water User Group (WUG) leaders are also the Villager's Group leaders. This is called 'two names (organizations), one management team' (*yi tao banzi, liang kuai paizhi*). Alternatively, WUA executive members are elected from the Villager's Committee members and Villager's Group leaders, and the Villager's Group leaders thus become the Water User Group leaders and representatives with very limited capacity building (Lu 2008; Wang 2007). This raises the problem of the Villager's Committee's gender sensitivity. The leadership structure at village level is as follows. There are Villager's Committee (VC) members headed by a VC director and vice director. Under this are villager representatives lead by leaders and accountants at Villager's Group level. Under the villager's group is the villager assembly. My field research shows that in practice, the system of 'two names, one management team' does not allow villagers to elect their own management team and representatives in water management. In terms of composition of the management, most WUAs differ little from the other bodies of collective management. Thus, in reality farmers have little voice in managing or appointing the management team of their community's irrigation system (Lu 2008). This overlap of organizations has also been shown in the literature by other Chinese scholars in other places (Wang et al. 2005). There are no (or only a few) water user representatives who are not part of other management structures. Also, even when WUAs hold regular meetings, farmers are seldom invited to attend them. Each villager's group has only a single Water User's Group leader, who is at the same time also the representative; when there is a meeting, the group leader can casually invite several people to attend, ignoring others. With the overlapping of Villager's Committee members and Villager's

Group leaders with WUA and Water User group leaders, and because men dominate the Villager's Committee in most villages, women are thus excluded as WUA participants.

“Nomination of deputy directors by the director of WUA” according to the rules in the WUA Constitution further excludes women from WUA key positions (MCWRB 2005b, 2005c).

The actual number of women in leadership positions related to water use is very small as a result of all these exclusions. For example, while there are 59 WUA executive members and representatives in the two villages in 2007, only one of them is woman. The one woman currently in a WUG became a member as a direct result of my visit to assess gender issues in 2005. Further, while village Z had a 2007 population of 1459, divided among 354 households, and their WUA has 36 Water User Group representatives and an additional 6 executive members (1 director, 2 deputy directors and 3 executive members) for a total of 42 WUA executive members and representatives, only one of whom was a woman, and she was the accountant and women's representative in the Villager's Committee. She is married, with a secondary education. Her household is relatively rich in the village. In Village W, with a population of 1743 divided among 434 households, there were 7 executive members (one director, two deputy directors, and 4 executive members) and 10 representatives, all of whom were male. Thus, even though women are involved in water use, they have almost no presence on WUAs and little input in decision-making beyond the household. Women are either absent from or silent in committee meetings. In the larger community, women generally do not have decision making roles. Normally, women have no chance, even at the household and group level, to participate in the election of the WUA. A similar results was found in Yichang region in Hubei Province and Tangshan region in Hebei province, where a total of 31 WUA directors included only one woman director, and only 10% of the WUA executive members and 15% of the water user representative are women (Wang 2007).

Costs and Benefits of Participation

There are a number of factors, both tangible and intangible, that influence women's participation in decision-making and in the WUAs. In addition to the 'one member one household' meeting attendance system, another reason has emerged more recently as increasing numbers of individuals (mostly well-off and male) have bought telephones or cell-phones: village or group leaders are beginning to inform people of meetings by phone, and this tends to exclude women, female-headed households and poor households, because they seldom have telephones. Telephones or cell-phones can be effective means of communication, but can also contribute to exclusion. Other factors of exclusion mentioned by women include high domestic and productive

workloads as well as marrying into the village, make it difficult for them to speak at meetings. Since most women's educational level is lower than men's, women also lack confidence to speak in front of men, and even if they do speak, men will not pay much attention (Lu 2008). Some men refer disparagingly to 'women's view' (*furen zhi jian*) or 'women know nothing' (*funv dong ge sha*). When the author tried to find some women and talk to them, men always said "they (women) don't know how to speak" (*tamen bu hui shuo ge sha*), "they are shy" (*tamen baixiu*), "they are very busy" (*tamen mang de hen*). As a result women and the poor are excluded again. Women are facing more barriers and exclusions. It costs more for women to participate in decision-making and WUAs than men and women benefit less from the participation than men, because overall their participation in WUAs is very low as found in else where (Wang 2007). It is also not considered safe for women to go out at night, and long distances and inconvenient transport are typical in rural areas. Men face no such restriction on their movements, and are able to cope with distances by going to meetings by motorcycle. Very few women own or ride motorcycles, so in any case it takes women much longer or costs them more to go to meetings, and this not only applies to WUA meetings. For example, participants in a training held in a village during the fieldwork were very obviously mainly men who owned motorcycles and cell-phones, joined by only a few women (from well-off households) despite an emphasis on attracting women and the poor. It was too costly for poor women participate. Even if a woman is elected to the Villager's Committee, usually she will be the one woman out of 5-7 Villagers' Committee members, and she will probably be in charge of women's affairs, family planning or accounting, making it difficult for her to speak out or to express her ideas on other matters. And even she speaks out; it will be difficult to get a fair hearing from the men in the male dominated groups.

Discussions, interviews and workshop conducted with men and women showed that in general, women's capacity in water management is low: they have less education, and much less experience in leadership, management, communication and negotiation. Men do not trust women to do things, saying that Gender equity campaigns and advocacy are long processes with goals that will take decades to achieve. Participation by women will not happen overnight (Buchy and Subba 2003) There is an urgent need to sensitize government officials and policymakers, and women as well, to gender and social equity issues. Attitudes and behaviours need to change. Their gender awareness and their knowledge about gender should be strengthened. Government officials and policymakers will need to overcome their own social bias and prejudices before they can act with similar awareness in their work.

The Gender-Blind (and socially-blind) Approach

A Biophysical Focus

In China, natural resource management has been considered to be a technical problem within natural science for a long time, and thus as having little to do with social science. When we talk about water in China, most people can only link it with its physical infrastructure, movement and uses: flood, drought, irrigation systems, hydraulic works, reservoirs, river basins and drinking water. In their understanding, water management is definitely a domain for the natural scientists and technocrats. Natural resource management has thus been maintained by generations of engineers and bureaucrats. Before the 1980s, water management and irrigation was seen only from a rather narrow agronomy and civil engineering perspective (Zwarteveen 2006). This has continued even during the promotion of people-centred approaches and of broader and more encompassing interdisciplinary approaches, and has meant that the focus of interventions in natural resource management is still in the biophysical domain (Buchy and Subba 2003; Zwarteveen 2006).

During my fieldwork, it became clear that many technicians and natural scientists did not understand why and what social scientists were doing there. In the technicians' understanding, the work of social scientists was something very intangible and abstract, nothing people could see or touch. They did not understand that people's thoughts, attitudes, behaviour, and power relations are made tangible in the ways they used water, in their relation to saving water and protecting the environment. They saw their work as providing for people, and did not view people as a part of the process that influences the outcome.

It has also not been really recognized that natural resources are part of people's livelihood. Many officials and villagers in my interview said they saw water management as something related to using technical support from the state to build infrastructure like canals or wells that will supply more water. Technical solutions like canal building can be of course very useful, but socio-economic study, and socio-economic analysis of issues like environmental degradation, power relations, social and gender inequality, attitudes and behaviour can find the best ways to use such infrastructure. Sometimes, when there is good irrigation system and canal, water is still not effectively managed or equally. With the intervention of the Water Resources Demand Management Assistance Project (WRDMAP), the biophysical dimension is changing, as a result of the project, there is an increasing realisation amongst officials in the water bureaus that Integrated Water Resources Management (which is now being realised as beneficial) requires attitude shifts and that social issues are important⁹.

A Male Domain and Discipline

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Personal communication with Professor John Taylor by email on 02 April 2008.

The field of water resource management and services delivery is considered a 'male' purview and discipline (Resurreccion et al. 2004). As Harrison (1997) shows in his study of the FAO, disciplines related to agriculture have masculinised the agriculture producer fundamentally. Agriculture producers, including water users and other stakeholders, have been viewed as male implicitly by consultants and technicians. In the days when development and modernisation put emphasis on infrastructure development and technology transfer, water resource management and water services were regarded as the terrain of engineers and technicians who were largely male traditionally. Only recently has the synergy between technology and social development been explicit (Harrison, 1997 in Resurreccion et al. 2004).

As Oorthuizen (2003) remarks, water management is considered to be a male job which requires physical strength and toughness (Oorthuizen, 2003 in Zwartveen 2008). Most water managers and engineers in most water management organizations and irrigations agencies in most countries are men. As a result the presence of men and the meanings of masculinities are taken for granted in irrigation thinking and knowledge (Zwartveen 2008). Irrigation has been discursively, culturally and ideologically constructed as a male domain, technology and profession. Irrigation is often clearly seen and identified as a typically male domain and activity (Zwartveen 2006). Water control, status and expertise are linked to masculinity (Zwartveen 2008). Water politics appears to be an exclusively male affair, the dynamics of which are linked to sympathies and antipathies between men. The domain of water politics is seen spatially as a male domain (Rap, 2004 in Zwartveen 2008).

A Narrow Professional Culture

Due to the wide distribution of water resources, and the limited recognition of conflict around water resource exploitation and utilization, there has been little systematic research on water resources and its management. Also, water resources did not form its own niche in science, and instead was always integrated into hydrology or irrigation science, two academic disciplines in the Hydrology University in the 1950s in China. The research content has until now tended to focus on how to exploit and utilize water resources. In the 1960s, with the increase of global population and economic development, obvious water resources issues appeared, and people started to do research on water resources as a subject, but still, the research was focused more on water supplies, flood, drought, groundwater, and the impact of human activity on water circulation. By 1970, the focus was more on water resource management, planning, exploitation, utilization and protection, and a rudimentary water resource science began, but still with its traditional bias. In 1972, the International Association of Hydrology Study (IAHS) listed water resource science as a subject, like geoscience. Water resource was being considered in a

somewhat broader and more holistic way (Wang et al. 2002), but hydrology continued to be a subject related to 'measuring, reporting and calculating water amount and water quality' showing little concern for social issues. In these fields in practice, people are only considered for their labour contributing roles, for example workers building dams or canals for water management. Hydrological staff has been trained to measure, report and calculate water amount and quality as their main duty. They do not have skills to deal with social issues and community development, or people issues.

The Costs of Institutional Participation

In the complex situation of water resources, professionals are moving from a disciplinary approach to multidisciplinary and holistic approaches to respond to the emerging issues, needs and demands. International evidence shows that water management and its institutional arrangements are important measures for dealing with water shortages. There has been an assumption that local water management needs to rely on increased participation by farmers and better incentives to improve water access and increase system efficiency (Wang et al. 2005). This requires that the staff of the water department be retrained, and that they spend more time in the field to deal with farmers and to build good relationships with communities. This means the costs of human resource development, costs of coordination and cooperation, and costs of participatory process will increase. However, most staff from the water resources department are graduates in hydrology, and themselves lack an understanding of the social aspects of water resources management and lack training in the social aspects of water resource management. Meanwhile, local people possess local knowledge about water management, but lack knowledge of advanced water management, water saving and using knowledge and skills. This means local government needs to provide training to make up the missing expertise for both the staff of the water sector and for local communities. Local government also lack the capacity to do the training. Under such a circumstance, may be the costs of participation are too high for water resources department.

Intrinsic Weakness of the Participatory Process

There are several assumptions underlying the participation of local communities in natural resource management, the main ones being that (a) water is not effectively managed because local people are not involved in water management and (b) that participation will 'empower' local communities: give voice to the voiceless, they will fully participate, then it will solve power inequities (Parpart 2000). These are a few assumptions underlying participation theories are largely based on deluded pictures of social homogeneity and harmony (Buchy and Subba 2003).

This concept of participation has been misused and abused by various actors like government departments, non-government organizations, aid agencies, local leaders and by local people. It endangers the transformative potential of participation by making it into a mere instrumental process and a tool (Buchy and Subba 2003). Participation and empowerment have lost their real meanings, as participation itself has been de-politicized (White 1996).

To look at this another way, it was assumed that WUAs would develop or formalize institutions that would guarantee more efficient social control and enforce equity, because they are based on democratic representation. However, this democratic representation is difficult to realize when the wider structural factors that shape inequality within organizations and society are not dealt with (Buchy and Subba 2003).

Local Power Structure

Local communities are not homogeneous and equal societies. There is always a power relation between the rich and the poor, the powerful and the marginalized. The WUA constitution, though, does not mention fair representation of different groups, or women's representation. The poor, and women are unaware of the role they could play in WUAs; they lack communication channels and information. Instead, wealthy and powerful people dominate village meetings and village leadership. Wealthy men make decisions. According to local villagers, the staffs from local water department are in collusion with local power dynamics. Local water staff visit powerful and rich households, eat in their houses, but are either unaware of exclusion as an issue for water management, or just ignore this. As Village Committee or WUA leaders, better-off villagers have opportunities to develop their leadership and management skills, practice the management of local affairs, acquire knowledge and make contacts with external visitors, all of which exposes them to new aspects of the society. They also benefit from access to the political sphere. Villagers reported there was a case in which the WUA/VC director became a local political leader by using his position and doing a good job implementing the 'well closure and reduction of cultivated land' (*guan jing ya tian*) policy. The overlapping of VC and WUA is concentrating power into a few peoples' hands, and reinforcing local power that excludes women, the poor and marginal groups. New decentralization empowers the local elites. The village leaders and wealthy men go to meetings to obtain information and seldom share with the poor or even with their wives.

Usually, outside water management staff use VC or WUA meetings to disseminate information. Village leaders then control the information, and they use it to control others. Holding information is as a form of power. Poor people and most women lack this power, Shabby clothes, powerless and low education prevent them giving their opinions and interests in

public. This prevents them from influencing water management decisions. Local power structures are barriers keeping women from participating, and these are reinforced by WUAs, by regional and national government, and by international organizations like the World Bank. It is thus very difficult to address power within communities, departments, and between departments and communities.

A Top-down System

In the past, village leaders were appointed and assigned by township government and the Communist Party Committee. Only recently have Villager's Committees begun to be elected by villagers. However, township government and Communist Party Committees are trying to intervene in Villager's Committee elections so that the candidates they favour can be elected, because they rely on the Villager's Committee leaders to implement policies and regulations, collect tax or other tasks which are assigned from the upper-level government.

Given that the WUAs are the initiative of upper-level government, villagers have neither the interest nor the knowledge needed to set them up. They just try to fulfil the top-down request to set up WUAs by overlapping these with the Villager's Committees. This overlapping makes WUAs top-down organizations, as does the fact that their constitutions, rules and regulations are drafted and formulated by staff from the upper level (Mingtian County Water Resources Bureau) and not by villagers. The County Water Resources Bureau copies the WUA constitution from other places, modifies it and distributes it to villages. Some of the WUA executive members and a few representatives participated in the discussion of the WUA constitution, rules and regulations, however, they viewed this as just necessary to pass it as a process. Most of the WUA constitutions, rules and regulations are similar; some of them are almost identical, with village leaders just needing to put the name of the village in the blank space (MCWRB 2005a, 2005b). This shows there is very limited involvement of the local people in the WUA process.

A Gender Insensitive Context

The influence in Mao's words like "men and women are the same, or woman can do what man can do", has been in part to promote masculinity and to ignore the gender difference between men and women. Gender issues around water are not recognised by government officials, or by most scientists and technicians. Most think there are no gender issues and no gender inequities in local areas. They believe women and men are equal in China. But the fact that women and men are equal in the Constitution, does not make them equal in opportunities. This non-recognition of gender difference means that the government officials, scientists and technicians are not

sensitive to gender issues, so will not intervene or make constructive changes. In any case, such changes would be difficult given the current situation.

The Way Forward

Viewing WUAs as a way to promote participatory irrigation management shows their shortcomings in rural China. This does not mean that WUAs are a bad idea, or that they should be replaced by a more heavily top-down system. However, all involved should be made aware these shortcomings and try to overcome them.

After more than ten years of promotion of Water User Associations in China, there is still limited policy on equal access put into practice. Nor is this likely, since water scarcity and severe water shortages are increasing tension over control of this village resource. As this paper shows, WUAs fail to address gender equity for technical reasons of policy implementation, for conceptual reasons and for institutional or systemic reasons. Water User Associations are currently based on unsound assumptions concerning the complex social dynamics surrounding them, a biophysical focus, a male domain and discipline, a narrow professional culture, and were developed through a top-down system that also influenced their role and in a gender insensitive context. It is time for us to think about the reality of participation. Can WUAs or this type of participation really deliver gender equity and change power relations? If not, what can water management staffs, technicians and professionals do? Can they take responsibility for promoting and supporting social change? Concretely, gender inequality can be addressed through gender mainstreaming¹⁰ at policy implementation level and within the Ministry and Department of Water Resources itself. At the very least, the attitudes and behaviour of the staff, technicians and professionals need to change before water management staff can begin to promote social and gender equity and gender and social awareness. They need to be gender and social issue sensitive and to start integrating these issues into policy formation and implementation. This requires that water management staff, technicians and professionals be equipped with gender and participation awareness and knowledge. There is also a need to create a bottom-up system and a gender sensitive environment to facilitate gender equity. Meanwhile, water-related policies and WUA constitutions should include ways to address gender and equity issues and roles both practically and strategically. This will require enhanced participation by women and by representatives of poor households, e.g., “Water User Groups” should each have three representatives including

¹⁰ Gender mainstreaming is a strategy that ensures introduction of a gender perspective in plans, policies, programmes and laws in order to make them gender inclusive so that women and men benefit equally (MLG, 2003).

one woman and one person from a poor household. WUAs should respond specifically to the needs of women and the poor, and addressing the needs of female-headed households. From a strategic point of view, more socially aware water management relies on organizational change to promote participation, gender and social equity and justice. The international community could also play an important role to support gender mainstreaming and participation mainstreaming.¹¹

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¹¹ In this paper names have been changed to meet ethics approval and maintain confidentiality.

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