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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: With the increasing scarcity and competition, and degrading of water resources, and the emergence, spread and institutionalization of participatory processes, the World Bank imported 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. 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 the Water User Associations failed to integrate gender as a fundamental variable. 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 and social equity can be traced to the current dominant focus on the 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 intrinsic shortcomings of participation and the failure to recognise power issues in general. Thus, there is a need not only 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, a creation of bottom-up system and gender sensitive context.

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

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Introduction

China is experiencing great water shortage, degrading water resources, water pollution, unequal water distribution, increasing water competition within and between sectors due to increasing demand and imbalances in access to water (Z. Lu 2004). The availability of water is one constraint for agriculture development in China. Irrigation management is crucial to use water resources effectively and efficiently for agriculture development and to ensure food security. Different ways have been explored on how to sustain water use and irrigation engineering by scientists and engineers internationally. One practice is to allow water users to participate in irrigation management by handing in part or all, irrigation rights and responsibilities to water users (L. Wang 2007: 87). With the emergence, spread and institutionalization of participatory processes, and the increasing scarcity of water resources, the World Bank imported the concept of the Water User Association (WUA) to China in 1994 to promote participatory irrigation management. 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. Almost all the households in villages where WUA exist all over China are WUA 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. Participation can ensure 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 to achieve the goal of fair, equal, effective, efficient, and sustainable water resources management. Studies focused on the forestry sector and more specifically social forestry demonstrate that participatory forestry did not provide a change for all people including women and the poor to participate and benefit. The specific needs and concerns of women and men were not taken into account in sustainable forestry resource management in fact. Social forestry is proved a gender-blind and socially blind approach (Buchy and Subba 2003: 323). It is interesting to see whether it also holds the truth in water and whether forestry and water share many similar issues and characteristics. It is worth to explore if WUA really facilitates participation to ensure all people, including vulnerable groups like women and the poor to participate in water resources management. Here gender refers to the socially constructed roles and responsibilities of and relations between men and women. Gender differences depends on the extent to which patterns

of water resources control, decision-making, or welfare outcomes are influenced by systematic difference between men and women. Community organizations affect women's access to and control over resources and 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 blind approach refers to approaches which do not take into account the different gender roles and responsibilities of women and men, recognize no distinction between both sexes with assumptions incorporating biases in favour of existing gender relations (Mlg 2003).

Rural communities are complex entities, and their relationship with natural resources is more complex and entangled than is often acknowledged (Buchy and Subba 2003: 314). Rural communities are much diversified and heterogeneous societies, with women and the poor more disadvantaged in the distribution of natural resources (Agarwal 2001: 1623). The potential for participation of different groups in natural resources management is not equal. Social equity has been recognized in policy documents at international level, but the right to participate is not equivalent to the right to access to the means to exercise that right. 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. 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 as necessary for achieving sustainable management of water resources in international communities (Singh 2006: 61-62). However, 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 (L. Wang 2007). Women's role in irrigation has been ignored for a long time especially so in the Chinese context. One common assumption regarding irrigator farmers is that they are predominantly men, which leads to another assumption that farm household resources and labour are effectively controlled and allocated by men in the households (Upadhyay 2003). Women are treated as just domestic water users, while men are as the irrigators described by Goetz as the paradigmatic subject of the public and economic arena, whilst the domestic arena is female (Goetz, 1995 in Meinzen-Dick and Zwartveen 1998: 339). However, in reality, women do 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 Zwartveen 1998: 339). Even though women are involved in irrigated agriculture and agricultural decision making, women's participation in water users'

organization is still very low (Hussain 2007: 302, Meinzen-Dick and Zwarteveen 1998: 340). The frequent reported reasons for low participation of women in irrigation management institution are rigid norms, cultural traditions, women's high reproductive loads, female illiteracy lowering their self-confidence and capability to participate, meeting time and location of WUAs not suitable for female participation (Hussain 2007: 302).

Under Chinese context, the increasing water shortage and scarcity affects women and men differently due to unequal power between men and women. Gender differences and inequalities mean that men and women experiences 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 and women (Meinzen-Dick and Zwarteveen 1998: 338). Due to the unequal power between men and women, women and female-headed households² are usually marginalized.

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 the poor, female-headed households and women, because women and the poor rely greatly on agriculture to make a living, while the labour of more and more men has become mobile and moved beyond the village (Cidc and Sacdo 2007) .

Mingtian County is located northeast of Hexi Corridor in Tianma Municipality, Gansu Province with a population was 307,200 in 2004, in which 48.9% were women. The male to female ratio is 1.06:1. Water shortage, overuse of groundwater and desertification are threatening people's way of living in Mingtian County, where the water table now drops 0.5-1 meter each year in the last 20 years (C. Lu 2008). The government has encouraged migration and resettlement elsewhere, to reduce the pressure of population on the environment. More and more people are migrating to other places. Mingtian County Government plans to resettle 100,000-150,000 people in the 20 years between 2006-2026. By 2004, more than 80% of migrants were males who had left either alone or with their families for work elsewhere. Most of the 20% of migrants who are female have migrated as part of whole families. This further skews the gender balance (C. Lu 2008).

Women (and particularly poor women are finding it increasingly difficult to cope with these policies. This is reinforced by the ongoing process of feminisation in agriculture that is evidenced quite strongly in northern China³. 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

² 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.

³ Personal communication with Professor John Taylor by email on 02 April 2008.

because they have to reduce irrigation and thus abandon arable land. The poor and female-headed households also tend to have less land, low quality land, or plots located at the end of the canal, which makes it difficult to irrigate, and they rely more on agriculture to make a living, because they do not have labour to do migration work. Particular gender ideologies like shared norms, values, vision in village prevent women from active participation in collective management and decision making like in other countries in Asia (Molen 2001: 36). It seems women are excluded in Water User Associations. Many women's role is limited to the private domain of the households, they are excluded from the public and decision making domain. With the increasing water shortage and scarcity, there is a tendency that women and the poor, as disadvantaged groups, are easily excluded in water use and management in the future.

In order to prevent women and the poor from being excluded in water use and management and address the gender issues for sustainable and effective resource management, there is a need to look at what the gender issues are, why it is so difficult to tackle gender, and why gender issues are ignored in Water User Associations in China. There is much research on gender and water user association elsewhere, but this has not been much studied in China. There is limited literature about women's participation and the reasons that exclude women to participate in WUA in China (L. Wang 2007).

Water shortage and management of irrigation engineering are a big challenge for sustainable development. The situation is especially severe in Mingtian County, Gansu Province due to water shortage, overuse of groundwater, high salinity of ground water, and desertification are widely spread where the fieldwork was conducted.

This paper is based on relevant literature review and recent fieldwork in Village Z and Village W in Mingtian County, Tianma Municipality, Gansu Province⁴ in August, 2007. These two villages are all Chinese Han villages. The methodologies used to collect data are: (1) Review of literature and secondary data like documents, WUA Constitutions, Election method of farmer's WUA, meetings records, etc, in two WUAs in Village W and Village Z and Mingtian Water Resources Bureau; (2) Discussions and interviews with the 6 male and 1 female officials in 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; (5) Household interviews

⁴ 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).

with 14 households composed of poor, average and relatively well off households. A workshop on training needs assessment 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 are 3437 people⁵. The number of households is 825 households, in which 22 are female-headed households. Poverty is defined by the interviewed villagers as the 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: 24).

The paper examines the reasons why Water User Associations have failed to integrate gender and social dimensions as fundamental variables. This idea came from reading the paper written by Marlene and Subba (Buchy and Subba 2003: 323). Their framework is used in the analysis in this paper. 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 the in-built 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 interfere with meaningful progress towards gender and social equity. There is need for change goes beyond institutional adjustment.

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: 315). Within different culture and different ethnic groups, these roles and needs also differ. For example, traditional Buddhist culture is patriarchal. It promotes the idea that 'Men Are Superior to Women' (*nanzun nvbei*), values men above women (*zhong nan qingnv*) and discriminates against women. Women and men are referred to as *Yin* and *Yang*, *Yin* means dark, negative, weak, the moon, and female, while *Yang* means bright, positive, strong, the sun, and male. Traditional Confucius culture also imposes other social-cultural norms on men and women, for example, there is a saying in China 'men deal with external affairs, while women deal with domestic affairs' (*nan zhu wai, nv zhu nei*). Buddhist culture has also influenced mainstream politics in China. This combination of Buddhist and Chinese culture is the mainstream culture in this area and is influenced by (the also patriarchal) Muslim culture in the surrounding area in Gansu. The Constitution of the People's Republic of China

⁵ There is no proportion of male and female available.

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...."(Cpgrp 1982). However, during Mao's Era, this equality referred more to advocating equal work, egalitarianism and equality between women and men even though Chairman Mao said "Women hold up half of the sky". In recent years since the opening economy policy, discriminations against women especially at birth, in education, employment, retirement and public decision making spheres still persist.

Who Does What?

In the two villages, gender roles are fairly well-defined. Women are responsible for domestic housework, childcare and parenting. At the same time, women are also 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 like irrigating, maintenance of irrigation system, 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 less than 20% of households, only women do the irrigation and water management (Zhang and Wang 2006: 24). 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 households, where the women carry out all tasks. More and more men are going out for work migration. Mostly women are the one who are left behind in rural area to bear the deterioration of water and environment degradation most, who are the one who are the hardest and the earliest hit by water shortage and deterioration (Unep and Wedo 2004: 61, 80). However, according to the interviews with women, fewer than 30% of the meeting participants are women who attend meetings related to water use, 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 and 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, however, men still play a dominant role in decision-making in rural area. 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 plan and ask them to come back to deal with irrigation in irrigation time. This brings the delay of water use and ineffectiveness in water management while men are going out of migration.

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 other places. 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. However, men are mostly the ones who spend money for shopping. Decisions on everyday expenses are often made jointly within the household. However, 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 the members and the situation in the husband's village at the start of the marriage. Many women are called So-and-so's wife in the village. 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). It decreases women's bargaining power both within the household and in the wider community (Agarwal 2001).

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.

⁷ 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.

Who needs and wants What?

After reviewed the gender issues, in order to change the situation of gender inequity, especially barriers/difficulties that prevent women from participation, 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. The result shows that women tended to have low levels of education and knowledge, narrow experience, low capacity, are dependent on men, and lacked self confidence. Women report more instances of discrimination that, housework is a women's responsibility, and 'no representation in WUA' (C. Lu 2008). Meanwhile, men mostly use water for agriculture, while women use water both for productive and domestic purposes as showed the literature (Meinzen-Dick and Zwarteveen 1998: 339). The purposes for which water is used thus reflect wider socio-economic issues.

The focus group discussion shows that men and women have shared water needs in agriculture. For men and women on farms, the nature of the husband's and wife's needs for (non-domestic) water can be quite similar. Both need and want water to irrigate their plants in the field adequately. 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 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.

Women express that they also need water for domestic purposes such as cooking, washing and cleaning, and for watering livestock and irrigating kitchen gardens in the two villages. Women in female-headed households also have different water needs than women in male-headed households, as a consequence of reduced availability of male family labour, and also because irrigated agriculture assumes a different importance in different household's livelihood strategies (Meinzen-Dick and Zwarteveen 1998: 340). 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 labour mobility income to compensate.

From the training needs assessments, 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 are 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 (C. Lu 2008). Women also raise the question of improving drinking water access and having tap water, because nowadays, it is not inconvenient for them to fetch drinking water. Government officials, policy makers and project officers need to be aware that both men and women's needs are clearly identified and taken into account during training needs assessment and in the preparation of water management work plan, and to be aware the difference between satisfying the practical gender needs which is to improve women's condition like access to water by making a practical difference to their lives, and strategic gender needs to improve women's position by creating opportunities like taking part in decision-making in water management to improve their social and economic status for women in society (Klugman 1999: 50, Moser 1989: 1817). It is interesting to explore whether policies are aware of these differences.

Policy and gender roles

At policy formulation level, it seems that there is widespread consensus about the need to include women in community organization for resources management and conservation (Meinzen-Dick and Zwarteveen 1998: 339). The Dublin Statement on Water and Environment includes, as Principle Number. 3, the idea that: 'Women play a central part in the provision, management and safeguarding of water...Acceptance and implementation of this principle requires positive policies to address women's specific needs and to equip and empower women to participate at all levels in water resources programmes, including decision-making and implementation, in ways defined by them' (Icwe 1992:4). This theoretically applies to China, yet 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 in 2002 (Mwrprc 2002). The Regulations for Water Abstract and Water Resource Fee Collection Management stipulates 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 practically. However it does not ensure poor women and men to access water for irrigating their home vegetable gardens, which is one of their more important uses of water to provide 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 zhenqshou guanli banfa*) (The Methods in short) mentions that the an 'extreme difficult enterprise' (that means 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 sense, this protects the needs of poor women and men, or vulnerable people practically. It appears to be a concern of social and gender issues in the formulation of The Regulations of Gansu Province on Shiyang River Basin Water Resources Management by bureaus with the impact of this regulations 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 (Mcaprc 1998) 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. However, Item 21 stipulates one person can be recommended from every 5-15 households (Mcaprc 1998). When only one person is recommended, this will seldom be a woman. The law’s initiatives are narrow in their focus and fail to address this strategic issue.

All of these policies and documents fail to indicate how gender issues can be addressed strategically. A few of them recognize women’s roles or women as a disadvantaged group, or specify or imply any 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, namely 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 requires the lower level (local villages) to set up a WUA, 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 (J. Wang et al. 2005: 776).

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 2005b, 2005c). The 'Village Water User Association Constitution' (Mcwrb 2007) simply says that 'each water user group uses democratic recommendation or 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. Fewer than 30% of women who have ever attended meetings are widows, or single, or their husbands are unavailable.

The WUA constitution 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). There is only one representative from each Water User Group in Village W (Vwwua 2007) and three representatives from each Water User Group in Village Z (Vzwua 2007). Most of the time, the villager's group leader is elected and male. Thus Villager's Group leaders are also water user group leaders or representatives.

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

In practice, most of the time, even if elections are held, the Villager's Committee directors and Villager's Group leaders are the one 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 paizi*). 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 (C. Lu 2008, L. Wang 2007: 90). This raises the problem of the Villager's Committee's gender sensitivity.

The leadership structure of at village level is as followings. There is Villager's Committee (VC) members at Villager's Committee level led by VC director and vice director. Under it is villager representatives led by leaders and accountants at Villager's Group level. Under the villager's group is the villager assembly.

In practice, the system of 'two names (organizations), one management team' does not allow villagers to elect their own management team and representatives in water management showed from the field. 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 (C. Lu 2008). This is also shown in the literature of other Chinese scholars in other places (J. Wang et al. 2005: 777). 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; because men dominate the Villager's Committee in most villages, women are excluded as WUA participants. "Nomination of deputy directors by the director of WUA" stated in the WUA Constitution (Mcwrb 2005b, 2005c) further excludes women from WUA key positions due to the limited gender awareness of most village directors. There are no special measures to ensure women's participation.

As a result of all these exclusions, in total 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 the result of the author's visit to view gender issues in 2005. In 2007 Village Z had a population of 1459 divided among 354 households. Their WUA has 36 Water User Group representatives and an additional 6 executive members, of whom one was director, two were deputy directors and 3 were executive members. Thus, in total there were 42 WUA executive members and representatives in Village Z. Of these, only one 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. Similar result was found in Yichang region in Hubei Province and Tangshan region in Hebei province where in total 31 WUA directors there is one woman director, and only 10% of the WUA executive members and 15% of the water user representative are women (L. Wang 2007: 89).

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. Except 'the one member one households' 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 women usually do not have cell-phones and female-headed households and poor households do not have telephones. Telephone or cell-phone can be effective means of communication but 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 (C. Lu 2008). Some men refer disparagingly to 'women's view' (*furen zhibi 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 say" (*tamen bu hui shuo ge sha*), "they are shy" (*tamen haixiu*), "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 due to their participation in WUA is very low (L. Wang 2007: 90). 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 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. This does not only apply 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.

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 express her ideas on other matters. And even she speaks out; it will be difficult to get a fair hearing from the men.

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 fewer leadership, management, communication and negotiation skills. Men do not trust women to do things because they worry that women cannot do them well. Women also lack self confidence and do not feel independent. They are often self-contemptuous.

Gender equity campaigns and advocacy are long processes with goals that will take decades to achieve. Participation by women and the poor will not happen overnight (Buchy and Subba 2003: 323). 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: 39). 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: 323, Zwarteveen 2006: 39). When we went to the field, we found 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 people in my interview think that water management is 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. Some times, when there is good irrigation system and canal, water is still not effectively managed or equally distributed. Technicians lack the tools to determine why this happens. They need social scientists, who have the skills and tools to do this.

With the intervention of the project, 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 social issues are important to look at⁹.

A Male Domain and Discipline

The field of water resource management and services delivery is considered a 'male' purview and discipline (Resurreccion et al. 2004: 529). Harrison shows how disciplines related to agriculture have masculinised the agriculture producer fundamentally in his study of the FAO. Agriculture producer like water users and 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, the synergy between technology and social development has been explicit (Harrison, 1997 in Resurreccion et al. 2004: 529).

Oorthuizen remarks water management is considered to be a male job which requires physical strength and toughness (Oorthuizen, 2003 in Zwarteveen 2008). Most water managers and engineers in most water management organizations and irrigations agencies in most countries are men. At a result the presence of men and the meanings of masculinities are taken for granted in

⁹ Personal communication with Professor John Taylor by email on 02 April 2008.

irrigation thinking and knowledge (Zwarteveen 2008: 111). Irrigation has been discursively, culturally and ideologically constructed as a male domain, technology and profession. Irrigation is often clearly seen and identified as typically male domain and activity (Zwarteveen 2006). Water control, status and expertise are linked to masculinity (Zwarteveen 2008: 112). 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 spatially a male domain (Rap, 2004 in Zwarteveen 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 their own niche in science, and instead were always integrated into hydrology or irrigation science, academic disciplines in 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 (H. Wang et al. 2002), but hydrology was still a subject related to ‘measurement, report and calculation of water amount and water quality’ showing little concern for social issues. 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 (J. Wang et al. 2005: 771). 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 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 local communities. 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 assumptions underlying participation theories are largely based on deluded pictures of social homogeneity and harmony. 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: 326). 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: 326).

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. Wealthy and powerful people dominate village meetings and village leadership. Wealthy men make decisions. 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 is 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 in well closure and reduction of cultivated land implementation. 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, water management staff uses 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 are lacking this power, Shabby clothes, powerless and low education prevent them speaking out their opinions and interests in public. This prevents them from influencing water management decisions. Local power structures are barriers keeping women and poor people 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 to set them up. They just try to adopt the upper-level 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 was just 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, 2005c). There is very limited involvement of the local people in the WUA process.

A Gender Insensitive Context

With the influence in Mao's words like "men and women are the same, or woman can do what man can do", it promotes masculinity and ignores 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 inequity in local areas. They believe women and men are equal in China. Yes, women and men are equal in the Constitution, but not 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 are 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. This paper shows that 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 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. It is recommended that to include reference to enhanced participation by women and by representatives of poor households, e.g., “Water User Groups” should each have three representatives including one woman and one 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.ⁱ

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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).

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