

## Research Paper

# Cinderella and the missing slipper: gender dynamics in water management in the coastal region of Bangladesh

Khalid Md. Bahauddin and Hamidul Huq

### ABSTRACT

This study explored the gendered roles, responsibilities, and inequalities of access to and control over water management in the household, irrigation and agriculture. This study observed that there is considerable gender imbalance with regard to household activities, income generating activities, participation and mobility, ownership and control of resources, decision making power and involvement in different activities in water management. The distinct roles and the relations between men and women may give rise to gender inequalities where one group is systematically favored and holds advantages over another. Therefore, gender mainstreaming in water management is an integral dimension to bring to light the concerns and experiences of both men and women. The study is convinced that dissemination of information with regard to the role of women in water management and benefits of a gendered approach in the water sector has been neglected. There were inadequate research materials, especially locally in relation to gender, water management and women's empowerment, indicating that either there has not been much research conducted to explore the topic, or there has been no proper documentation of research papers pertaining to the same. Possible areas of further research may include evaluating the gender mainstreaming strategies in water and agriculture management in the southwest coastal regions of Bangladesh.

**Key words** | coastal Bangladesh, gender, inequalities, responsibility, role

**Khalid Md. Bahauddin** (corresponding author)

**Hamidul Huq**

Institute of Development Studies and Sustainability (IDSS),

United International University (UIU), Dhaka, Bangladesh

E-mail: [khalid.bahauddin@gmail.com](mailto:khalid.bahauddin@gmail.com)

### INTRODUCTION

Women and men have different roles and responsibilities within households and communities. This means that they interact differently with the environment and have different knowledge about water and other natural resources (Guslits & Phartiyal 2010). In many developing countries, including Bangladesh, women and girls are responsible for collecting water from remote sources for use in the home which often leads to health problems, safety issues and a lack of time for schooling, income generation or community participation (Penning de Vries & Ruaysoongnern 2010).

Globally, women are involved along with men in using water for farming, animal care or small businesses. However, despite their obvious interaction with and knowledge

about water, women often lack a voice in water management discussions and decision-making. A wide range of literature shows that including the needs, ideas and knowledge of both women and men in water management decision-making will create management plans that are more equitable and sustainable. In order to effectively encourage participation from all members of society in these discussions, a general understanding of women's and men's interaction with water on a daily basis is important. This interaction varies throughout the world (Resurreccion 2010). Therefore, it is crucial to understand gender and water relations in the context of Bangladesh in order to begin pursuing efficient water management in the country.

In Bangladeshi societies, women have the primary responsibility for the management of household water supply, sanitation and hygiene. Among other domestic water users, women depend on this resource more for the smooth running of a home and to some extent they depend on domestic water supply for subsistence food production and small scale agriculture (Agrawal & Ribot 2012). Because of this dependence on the resource, women attach great value to it and are affected by their being marginalized from active participation in decision-making and mismanagement of the resource. Men and women have different uses for water and attach values to these uses. Therefore, water distribution and management will be greatly influenced by these uses and their value (Ayers 2011). However, regardless of the points illustrated above, major efforts aimed at improving and managing the water and extending access to safe drinking water and improved sanitation tend to be sidelining women. To a larger extent, efforts are overlooking the central role of women and the significant contribution they can make to the water management sector in Bangladesh (Birner *et al.* 2010).

There has been little empirical research on how gender, along with other differences, affects collective action for water management in Bangladesh. Therefore, it is hoped that this research will be an addition to the existing body of knowledge. Further, in order for policy makers to develop more sustainable and equitable policies for devolution of water management, striking a gender balance can ensure that the roles and responsibilities of women and men are mobilized to best effect. However, for this to be achievable there is a need for more consistent information about men's and women's formal and informal roles and strategies for accessing and managing the resources, and the factors which influence their actions. The research findings may provide an understanding of the gender roles in water management and also provide a further understanding of why women are failing to integrate in the water sector at all levels of society. The findings may further provide the basis for rigorous and targeted sanitizations as well as the development of evaluation tools for water policy implementers. Finally, the study is relevant because it provides the basis for future research aimed at improving and enhancing human development without compromising or

endangering the sustainability of finite fresh water resources.

---

## GENDER AND WATER MANAGEMENT

Women are increasingly being seen as active agents of change and the dynamic promoters of social transformations that can alter the life of all members of society (Sen 1999). However, the manner in which decisions and choices on water resources are handled can have great implications for women who use the technologies to get water and are the end users of water resources in the households (Rodda 1993; Rydhagen 2002). Gender sensitivity which involves women's participation in water management is, therefore, important. According to the United Nations Development Programme (2006), the cause of the global water crisis is believed to be far from a scarcity problem. Instead, it is a result of the poverty, inequality, unequal power relations and flawed water management policies evident in most third world countries. Perkins (2008) argues that the fact that the voices of marginalized groups, especially women, are rarely heard by the policy makers illustrates another truth behind the water crisis.

When looking at the topic of gender and water management, it is imperative to mention that the escalating levels of environmental degradation, excessive water consumption by the economic sectors, water contamination, including salination of aquifers and other water bearings including rivers, lakes, and dams, have contributed greatly to the existing environmental, social and economic catastrophe. This kind of catastrophe has profound effects on the availability of drinking water and, consequently, has led to the violation of the right to life, safety, food, health and education of billions of human beings. In all this, women and children pay the highest price (Grover & Sethi 2007).

In most societies, women have the primary responsibility for the management of household water supply, sanitation and health. Water is necessary not only for drinking, but also for food production and preparation, care of domestic animals, personal hygiene, care of the sick, cleaning, washing and waste disposal. Because of their dependence on water resources, women have

accumulated considerable knowledge about water resources, including location, quality and storage methods. However, efforts geared towards improving the management of the world's finite water resources and extending access to safe drinking water and adequate sanitation often overlook the central role of women in water management (UN Water 2006).

There has been a growing body of evidence that demonstrates the value and importance of an integrated approach to water management. The role that women play in the entire process of water management cannot be over-emphasized. The gender roles of women make them key custodians of domestic water supply, and therefore, they should be seen as important agents in its management. Women give life and take care of families and 'water is a necessity to human health, economic and social development of communities and nations around the world. State parties should, therefore, take steps to ensure that women are not excluded from decision making processes concerning water resources and entitlement, the disproportionate burden women bear in the collection of water should be alleviated' (Chowdhury & Rasul. 2011).

Gender disparities ensure that those needs go unmet, with discrepancies in the land tenure system, access to water, participation, resource control, capacity and skills development and marketing and commercial linkages (Faisal & Kabir 2011). Further studies on social stratification clearly demonstrate that intra-community differences between sub-groups exist and these differences are cross-cutting in the sense that they do not only apply to a sector of development, for instance to wealth distribution, but also affect various aspects of both economic and human development, ranging from norms and preferences to power and interests (Bendix & Lipset 1954). Therefore, Halim (2011) argues that priorities for use of resources and styles of management are also likely to differ, as are capacities and powers to defend those priorities. Gender cuts across these dimensions of intra-community differentiation and hierarchy. In terms of access to and control of resources, gender interacts with other aspects of socio-economic differences, implying that women cannot be considered a homogeneous category in terms of their interests and needs.

In Bangladesh, a gender analysis conducted in 1991 during the 1991 Flood Action Plan indicated that women not only bear a greater burden in contending with natural disasters like floods, but their normal responsibilities also increase. The female headed households are marginalized with regard to relief supplies, pushing women and children to look for alternative means of survival. From the gender perspective it is therefore important that water and aquatic life be safeguarded and are seen as being critical in terms of improving women's livelihood (Gender and Water Alliance 2003). In studies in Nepal and Nigeria, it was discovered that women and children have to travel long distances to fetch water for their families (UNIFEM 1999). Access to adequate quantities and quality of water – a basic source of all forms of life and production of food, fiber and fuel – has a significant bearing on human well-being. The two most important and inter-related routes to water-induced poverty reduction are: (a) improved outcomes in terms of health and nutrition status, thereby improved quality of life; and (b) increased productivity, especially of primary products, thereby increased upward mobility – social as well as economic. Evidence from a large number of developing agrarian economies in South Asia suggests the overall poverty-reducing impact of water, especially irrigation, at macro level. The poverty-reducing impact of water within the production sphere takes place through its impact on enhancing farm productivity at the household level and its impact on sustaining the overall economic growth at the macro level (Mendis & Udomsade 2005).

It is clear that there is a need for further empirical or evidence-based studies that show the relationship between gender, water resource management and how it affects the socio-economic empowerment of women, as well as how women contribute to the management of water resources. There still exists a gap in the evaluation of the extent to which women can be involved in or can contribute to sustainable water management at the community level. Furthermore, there are gaps in assessing the level of women's involvement in water management. It is imperative therefore that research incorporates such vulnerable groups, especially women, and that their knowledge and needs be considered to aid achievement of sustainable solutions towards the water problem and its impacts on these vulnerable groups of people in Bangladesh.

## OBJECTIVES OF THE STUDY

Despite policy being tacked on gender mainstreaming, the prevailing scenario suggests that women are being marginalized in water management issues in Bangladesh, as was evidenced from the study. Major efforts aimed at improving and managing the water and extending the access to safe drinking water delineate the role of women in the whole process. On the one hand, their role has been limited to household level. It is not very clear as to what specific roles they can take other than those of being household care givers. On the other hand, in instances where major steps have been taken to involve them, women seem disinterested in taking up the challenge. Considering the situation discussed above, the objective of this study was to explore and document the gender dynamics in water management in the coastal areas of Bangladesh by surveying the gender roles, responsibilities, power relation and identity at the community level.

## METHODOLOGY

This study was qualitative in nature and primary data were collected through in-depth individual interviews, group discussions and focused group discussions (FGDs) with farmers (male and female), men and women at household level, government and non-governmental organization (NGO) field workers in relevant projects. The data collection for this study was carried out in the Bajua and Laodob union of Dacope upazilla of Khulna district. To achieve the research objectives, six in-depth individual interviews, four group discussions and six focused group discussions in each of these two unions were conducted using a set of checklists and guidelines. Secondary data will be examined critically and organized to obtain an in-depth understanding of gender dynamics in water management in the study areas.

## FINDINGS OF THE STUDY

For exploring gender dynamics in water management in the study areas, this study used a 'constructivist approach'. This approach was originally adopted by Jean Piaget in education

philosophy and was improved upon in development circles by Katherine Hayles. In the constructivist approach, it is held that through the physical involvement of community members, including key stakeholders and disadvantaged groups, it is possible to enhance the empowerment of women as social actors in these communities. This is because gender is recognized as a basic organizing principle that profoundly shapes the concrete conditions of men and women in society. This approach assisted in understanding the relationship that existed between involving women in processes of water management at community level and their socio-economic empowerment.

This study found that household structures are relatively hierarchal in the study areas where there are commonly lucid differentiations about the gendered division of labor and rights. Men do not involve themselves in fetching fresh water for domestic purposes as that is considered a feminized task for the women and girls of the household. Most of the men in the study areas said 'collecting water is not the job for men, people in our society mock at us if we collect water which is against the prestige of a man'.

In the study areas, men's resistance to participating in household work, such as collecting water for drinking and other purposes such as irrigation water for homestead vegetable gardens and water for livestock, was very evident in all the FGD sessions. However, interestingly, during in-depth interviews (IDI) sessions most men said that they perform more household tasks than they admit publicly. Publicly, men opined that household activities should always be performed by women. They consider activities such as collecting water and homestead vegetables, cooking, cleaning, washing and child rearing as women's sole responsibilities. On the other hand, the outside activities such as office work, agricultural works, shopping etc. are considered as the male domain. They also think women's work has no economic value, so they do not like to help women in household activities, thinking it will degrade their position within the household and society. Rather, they think it is their right to punish women if they fail to do routine household work.

Although men like to take care of their children, most believe that cooking and collecting water should be done only by women. However, most women during FGD sessions opined that they do not like to see that their husbands are performing the household tasks. Most of the

female respondents from the villages of Bajua and Laodob union opined: ‘...Cooking, collecting water and taking care of children are solely women’s work... though the males can take care of children, they do not willingly do these chores... and they should not do also.’

Although there is evidence from both women and some men’s accounts that men also participate in some of the household work, this study found that men are reluctant to admit that in public. During FGDs many young women reported that men nowadays help them in household work, such as collecting water for drinking, irrigation water for homestead vegetable gardens and water for live-stock, when their wives are away from home to attend NGO meetings (yard meetings) or training. It is understandable that men are reluctant to accept such changes as it is women in the study areas who are expected to carry out the household activities in the private domain. Therefore, even though some men help women to perform different tasks, such as collecting water and homestead vegetables, cooking food for the children when needed, feeding the children, cleaning households, taking care of poultry and cattle etc., they do not want to admit that in public. However, those men who admitted that they had also participated in cooking for a day or two did so as there was no one else in the household to cook for the babies. It should be noted here that in the study areas, this study observed the emergence of nuclear families and the respondent reported degradation of household harmony among the in-laws. Previously, as there were joint families only, there were always some female members who could cook food for the babies in emergencies.

It is noted that even though women dedicate their work for the welfare of their family, it is often hardly recognized by men. Men reported feeling angry if women fail to perform any of these ‘easy tasks’ in time, such as not collecting water for the household, homestead vegetable gardens and live-stock in time for when the men get back from work. The general practice in the study areas is that a husband will never help women in collecting water and if they do so they will become the object of laughter among other men. They rather like to share the child care activities. Only a few of them stated that they helped women with collecting water and cooking while they were sick or in emergencies.

Male respondents in this study do not consider women’s participation in income generating activities (IGAs) in the agriculture and irrigation outside of the domestic domain as a desirable option, though they showed positive attitudes towards such activities. Their unwillingness towards women’s participation in IGA outside the home derived from the fact that they think it hampers a man’s prestige as others would criticize him for not being able to provide food and clothing to his family. Such participation in income generating activities in the studied areas by women is not a very old phenomenon. Although initially there were strong objections to women’s participation in such activities out of the household, the situation improved considerably thanks to the hard work done by the NGOs and also the contribution of women in household maintenance and income generation. However, this study found that though men have nowadays accepted such participation, they still think that women should concentrate on their household responsibilities first and then earn money. Almost all men, with very few exceptions, think that women’s income should also be controlled by their male counterparts or should be spent on the family’s welfare. Women’s opinion in this regard is no different to that of men. For example a female respondent from Bajua village opined: ‘mainly the man earns for the family... so he keeps control of all the maintenances and expenses...’

This study observed that poor women’s husbands consider their wives’ carrying out domestic labour in other households as humiliating and degrading to the family’s status. Even in hardship, men mostly did not think their wives or daughters should work in other’s households or outside work. Therefore, they prefer NGO or government jobs during hardship. The poor women who are forced to work for their family’s needs are not even expected to work outside as there remain chances of sexual harassment and negative attitudes from neighbors. A male respondent from Laodob village opined: ‘I support girl’s education... girls can do anything after completing their studies, it is permitted... but I will starve... will die but never let my daughters to do any odd jobs or laborious work... it is matter of honour...’

Though in the study areas most men do not accept women’s participation in IGA in agriculture and irrigation outside of their households, in some cases they have allowed women to be involved in activities in the same village.

However, a woman being involved in such work in a public place is very rare. In almost all cases, this study found that women are involved in those IGAs in which either they stay at home or they have their male family members to look after the work. A woman working independently in an income generating activity is very rare to find. In most cases, women perform their household activities whereas men oversee the IGAs which are based outside of the domestic domain. However, in some cases, women are involved in group-based IGAs such as cleaning the weeds in the paddy field and collecting water from canals, ponds and rivers using a container for irrigation purposes that require them to move out of their household. These works are mostly based in their village or nearby villages where women from the same neighborhood collectively participate. Though things have changed in the last twenty years, women are still stigmatized for their roles in the public world. For example, the rural poor women in the study areas who need to work as day laborers in the nearby neighborhood are often embarrassed by such work. It sometimes becomes an issue of degrading the honor of their husbands and is often considered as disregarding societal norms. In such cases, women are often forced to discontinue their jobs due to societal pressure and stigmatization. Those who continue simply cannot afford to give up this work and can do nothing but tolerate their neighbors' criticism.

In these study areas, this study observed that men and women do not receive the same wage for the same work. For some tasks (fetching water for irrigation, weeding, loosening soil, sowing, applying fertilizer and pesticides, harvesting, post-harvesting processing such as threshing, winnowing, cleaning and seed drying activities etc.), women perform like men and they even perform better than men do. However, they do not get the same wages for the same work. One of the male respondents stated, 'Women do not work like men. They are weak physically and cannot do heavy works like men and, they are very slow in working.' On the contrary most of the male respondents said 'as a laborer, women are much better than men, they are very attentive and industrious in working but men always dodge at work'. It was found that men receive BDT. 35 per hour while women get only BDT. 25–30 per hour.

This study explored that women who work in the agricultural fields, irrigation and collecting water for household and other purposes often face different types of harassments by men. The study observed that though men in general do not support sexual harassment or even teasing, they are relatively reluctant to protest such incidences. During the FGDs, few incidences of sexual harassment were reported which suggested that such incidences are not very common in the study areas. One of the main reasons may be because women are not expected to move alone outside of the home and in the public sphere. The other reason is quite frustrating as it points towards normalization of such incidences in which the girl victim is accused. Many men said that a good girl never becomes a victim of such incidences.

Men in the study areas reported that women's mobility has increased a lot nowadays in the field of agriculture and water management and they had to accept that due to the economic hardship. Many said during FGDs that as the cost of living has gone up, their income alone cannot support the family anymore. In some cases as the cost of hiring labour for agricultural works has also increased, they had to accept their wives help in such works in the so-called public space. Some of these men reported that though they found some other men, mostly from well off families, criticize that, they do not pay attention to them as long as they have economic hardship. Women, on the contrary, suggested that they have sometimes faced criticism from other women who are also mostly from well-off families. However, as they mostly work with their husbands or other male family members and in fields which are generally close to their households, they have never paid attention to that. Some of them also suggested that the cash support that they receive from the hirers has also helped them to get initial consent from their husbands to be involved in some IGA outside of home.

This study found that men in the study areas showed mixed reaction about women's participation in NGO's works, such as agriculture, irrigation, water management and different social awareness programmes. Though the majority of the poor men do not want to criticize NGO works publicly during FGDs, during informal discussions they have expressed their concern over this. The religious leaders and men from well-off families are more vocal about this. For example, during an informal discussion, a religious leader said 'NGOs are working to destroy our

family life because they have the target to bring out women from the family'. When discussed about women's participation in NGOs, some people argued, 'these women ignored the order of their husbands and obeyed the order of their officer (Bhatarer kotha charo, Saheber kotha dhoru)'.

Therefore, rural women in the study areas were not encouraged to join NGO works in the past. Though the situation has gradually changed, women still face many problems when participating in the workplace. Only five or six years ago, women faced barriers while working in NGO or GO services. Husbands, allowing their wives to work outside the home, were criticized by their friends or neighbors, saying, 'Are you a disabled person? Why did you let your wife to go outside and do men's work?' It took time but gradually people started accepting the positive changes in women's professional engagement, especially in the agriculture, irrigation, water management and different social awareness programmes. Women's financial contribution to their family brought this change into practice, though men's attitude towards it is still very unsupportive. Many people appreciated this as a proper utilization of women's education as well as enhancing their social status. It also opened an avenue for women to contribute to the development of the community.

According to the study findings, men in the study areas are always considered as the decision maker, the 'breadwinner' in the household, even if women earn. Women have very little say, if any, in the decisions regarding the maintenance of household resources, farming, harvesting, buying or selling of crops, irrigation and water management etc. These decisions are taken by the husbands. Even where women are given opportunities to give their choices, the final decisions are always taken by the men. The respondents stated that in a few cases, before taking important decisions like a daughter's marriage, selling or mortgaging in or mortgaging out of land, cultivation of crops, decision of timely irrigation, when to use pesticides and fertilizers, and selling of cattle, husbands consult with their wives, but often they take decisions without informing them. In most cases covered in this study, when a woman earns, her earnings are used for their family's welfare. Instead of buying land or property, women invest their income in their children's schooling or in buying food, clothes or medicine. Generally these kinds of decisions are taken by women.

In the study areas, indiscriminately it is only men who hold control over and access to resources. It is either husbands or any other male counterparts who take the responsibility of maintaining their household properties, especially land and water resources such as ponds. As households are mostly maintained by the husband's earnings, wives are also excluded from the ownership of newly purchased resources. Two main reasons were identified for such a discriminatory attitude towards women. One is the risk of losing economic and social power if the property is controlled by the woman. The other is the rule of Muslim law which allows daughters to inherit their father's property. Therefore, it is commonly perceived that as women own property from their parents' side, as a husband it is better not to share the property with his wife.

Whether the resources are owned by the husband or wife, men explicitly or implicitly always want to hold control over those resources. Generally it is the husband who decides whether his wife's assets should be sold or used for family needs. Women are mostly compelled to sell their assets such as ornaments, livestock or poultry to support the family during various crises such as buying food during scarcity, treatment of illness, paying laborers for collecting water for irrigation when there is severe lack of water etc. The crops produced on wives' land are also sold and distributed based on the husband's decision. The study only found a few examples in which the husbands gave property to their wives. The main reason for this was to meet the bride price which is a must for each husband to pay before he dies. Wives are also given the ownership of the land they buy from selling properties inherited from their father's side. Similarly, women have possession over the cattle they get from their parents which they might need to sacrifice to mitigate family demand. However, the furniture given during marriage, which is considered either as a gift or dowry, is the husband's possession.

This study suggests that gender dynamics in water management are governed by the socioeconomic and cultural dimensions and it affects gender roles, responsibilities, and division of work. In all the study areas there is considerable gender imbalance with regard to household activities, IGA, participation and mobility, ownership and control of resources, decision-making power and involvement in different activities in water management. This could result in

negative socioeconomic and health impacts. However, further investigation would be necessary to generalize the findings for the whole country and other industries.

## CONCLUSIONS

This study observed that there are considerable gender imbalances with regard to household activities, IGA, participation and mobility, ownership and control of resources, decision-making power and involvement in different activities in water management. The distinct roles and relations between men and women may give rise to gender inequalities where one group is systematically favored and holds advantages over another. Therefore, gender mainstreaming in water management is an integral dimension to bringing to light the concerns and experiences of both men and women.

The study is convinced that dissemination of information with regard to the role of women in water management and benefits of a gendered approach in the water sector has been neglected. There were inadequate research materials, especially locally in relation to gender, water management and women's empowerment, indicating that either there has been not much research conducted or there has been no proper documentation of research papers pertaining to the same. Possible areas of further research may include evaluating the gender mainstreaming policy in the water sector of Bangladesh. If policy is there and people are enlightened, where is the missing link? Lastly, further research is needed to focus on how women's knowledge of water management can be translated to community and national benefits.

## REFERENCES

- Agrawal, A. & Ribot, J. C. 2012 *Analyzing Decentralization: A Framework with South Asian and West African Environmental Cases*. World Resources Institute, Washington, DC.
- Ayers, J. 2011 *Resolving the adaptation paradox: exploring the potential for deliberative adaptation policy-making in Bangladesh*. *Glob. Environ. Pol.* **11** (1), 62–88.
- Bendix, R. & Lipset, S. M. (eds) 1954 *Class, Status and Power*. Free Press of Glencoe, USA.
- Birner, R., Quisumbing, A. R. & Ahmed, N. 2010 *Cross-cutting Issues. Governance and Gender*. Prepared for the Bangladesh Food Security Investment Forum, May 2010.
- Chowdhury, A. K. M. J. U. & Rasul, G. 2011 *Equity and social justice in water resource governance: the case of Bangladesh*. *South Asian Water Stud.* **2** (2), 44–58.
- Faisal, L. M. & Kabir, M. R. 2011 *An analysis of gender-water nexus in rural Bangladesh*. *J. Dev. Soc.* **21** (2), 175–194.
- Gender and Water Alliance 2003 *Gender and Water Development Report*. GWA, The Netherlands. Available from: [www.genderandwateralliance.org](http://www.genderandwateralliance.org).
- Grover, I. & Sethi, N. 2007 *Mapping out gender dynamics of farming systems of Haryana*. *J. Soc. Sci.* **14** (3), 281–288.
- Guslits, B. & Phartiyal, J. 2010 *Women and water in the age of globalization: protecting our most vital resource*. *Women Environ. Int. Mag.* **82/83**, 12–14. Retrieved from: <http://ezproxy.aut.ac.nz/login?url=http://search.proquest.com/docview/818562510?accountid=8440>.
- Halim, S. 2011 *Marginalization or empowerment? Women's involvement in shrimp cultivation and shrimp processing plants in Bangladesh*. In: *Women, Gender and Development* (K. T. Hossain, M. H. Imam & S. E. Habib, eds). University of Rajasthan, Rajshahi, pp. 95–112.
- Mendis, I. U. & Udumsade, J. 2005 *Factors affecting adoption of recommended crop management practices in paddy cultivation in Kalutara district, Sri Lanka*. *J. Soc. Sci.* **26**, 91–102.
- Penning de Vries, F. & Ruaysoongnern, S. 2010 *Multiple Sources of Water for Multiple Purposes in Northeast Thailand* (IWMI Working Paper 137). International Water Management Institute, Colombo, Sri Lanka. Retrieved from: [www.iwmi.cgiar.org/Publications/Working\\_Papers/working/WOR137.pdf](http://www.iwmi.cgiar.org/Publications/Working_Papers/working/WOR137.pdf); doi:10.3910/2010.208.
- Perkins, A. 2008 *Katine: It Starts With a Village. Water in Uganda*. Available from: [www.guardian.co.uk/katine\\_](http://www.guardian.co.uk/katine_).
- Resurreccion, B. P. 2010 *Beyond cloak words, toolkits, and gender myths: 'gender, environment and development' and integrative learning at the Asian Institute of Technology*. *Gender Technol. Dev.* **14** (1), 67–87.
- Rodda, A. 1993 *Women and the Environment*. Zed Books Ltd, London, New Jersey.
- Rydhagen, B. 2002 *Feminist Sanitary Engineering in Namaqualand, South Africa*. Department of Gender and Technology, Luleå University of Technology, Luleå, Sweden.
- Sen, A. 1999 *Development as Freedom*. Oxford University Press, Oxford.
- UNIFEM 1999 *Promoting and Protecting Women's Right to Water in the Context of Globalization and Feminized Poverty*. United Nations Development Fund for Women, New York. Available from: [www.unifem.org](http://www.unifem.org).
- United Nations Development Programme, Gender Water Alliance 2006 *Mainstreaming Gender in Water Management: A Resource Guide*. Version 2.1. GWA, The Netherlands.

First received 7 June 2018; accepted in revised form 11 June 2018. Available online 26 June 2018