



## WATER, ENVIRONMENT AND MANAGEMENT

### Women as managers - experience in Nepal

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#### INTRODUCTION

I am a daughter so beautiful  
 How should I fetch water?  
 If I fetch sitting,  
 I am smaller than the pitcher!  
 If I fetch standing,  
 My waist hurts ...

This song describes the dilemma of a little girl fetching water. Nepali folk lore and folk songs are full of such depictions about sweet and bitter experiences of women in relation to water. "Padheri" (water spout) is a village institution where recreation and socialization take place. In many instances, a young Nepalese woman experiences her first love at "Padheri". In other instances, women find refuge at "Padheri" (in the pretext of fetching water) and relief from overwork and chiding at home. Apart from this, to present more bitter experiences, women curse their own life and wish they had never been born (as a woman), as being women they have to haul water on their backs on difficult terrain up and down the hill. So, with experiences good and bad, women's life in Nepal is very closely associated to water resources.

Women are the haulers, users, and managers of water resources. Decrease in water supply has a detrimental effect on women's well-being. Two case studies (urban and rural) are presented in this paper to document the ways and extent to which women in Nepal are suffering as users and managers of household water resources.

#### CASE OF CAPITAL CITY

Telephone survey of 30 households (mostly women and a few men) was completed from water scarce area in Kathmandu. Although telephone survey is biased towards representation of middle and upper class households, this poses no difficulty in assessing the impact of water scarcity on women. If the conditions of middle and upper class women are as bad, one can easily imagine the situation of women in the lower class strata to be worse.

Sixty six percent of urban population had access to safe drinking water till 1990 (UNICEF, 1991). However, management problems in the government's water supply has resulted in leakage and wastage of such a precious resource. Frequent leakage means contaminated water re-entering the system. The so-called "safe-drinking water" in the Kathmandu valley is among the worst polluted in Nepal and perhaps in

the whole of South Asia (UNICEF, 1992). All respondents unanimously expressed their dissatisfaction with the quality and quantity of water provided by Nepal Water Supply Corporation (NWSC). Drinking water supplied by NWSC becomes costly when it has to be boiled (with costly fuel) and filtered (costly time wise) to make it potable. Otherwise, one has to bear the consequence of drinking contaminated water on one's health. The respondents thought that the amount of money they have to pay for the amount of water they receive is exorbitantly high. However, all the respondents expressed willingness to pay (even more than present tariff) if they got safe water in adequate quantity.

Water becomes scarce in many areas of Kathmandu city during the dry season (three/four months). However, it is not uncommon to get very little water or no water throughout the year. Thirty three percent of the respondents said that their taps do not provide adequate water. One of the respondents (male) even reported that he has not paid the tariff (in spite of repeated departmental reminder) since the last six years, because there is no water in his tap!

Long queues of water pitchers is a common sight during the dry season. People travel far away to fetch a single pitcher of water. Women expend their time and energy in queuing and fighting (verbal abuse and physical abuse). Respondent women reported emotional stress and tension due to water scarcity. Fifty percent of the respondents were employed homemakers. Scarcity of water affected their employment in terms of being late for work. Water scarcity also affected their work adversely as it is constantly at the back of their minds. Women also reported that water scarcity affected their health. Because they have to get up in the early hours of the morning to get a few buckets of water, or else they will have none.

Respondents reported using plenty (as much as needed) of water for drinking and cooking purposes, even if they had to spend a lot of time, effort, and money in fetching water. Some even had to borrow from their neighbours. However, most of them used water for dish washing, face washing, and toilet

moderately (reduced quantity). They used water for cleaning the house sparingly (very little) and postponed and decreased the frequency in bathing and washing clothes. Most of them gave up gardening. Many of them reported they dreaded live-in guests, especially on account of less water available for toilet use. They felt ashamed of the bad sanitation and cleanliness conditions in their homes. Fifty percent of the respondents reported having a tube well or a well apart from piped tap. Wells provided an alternative, which was more reliable and it reduced women's stress with availability of extra water needed for sanitation and cleanliness. However, some respondents found it very expensive as the quality of water was poor (not even fit for washing clothes). Reported installation cost ranged from three thousand rupees (\$60) to seven thousand rupees (\$140). In higher elevations, installed tube wells have reduced water quantity due to lowering of water table. These areas do not have adequate water even for flushing toilets.

Women seem to improvise when there is water scarcity. Some reported using kitchen waste water for kitchen garden and household plants, while others used water after washing clothes for flushing toilet. One respondent was creative enough to harvest rain. However, her complaint was that homes in Kathmandu were not designed for rain catchment.

#### **BURDEN OF BOSAN BELLES**

Thirty four percent of the rural population (5.8 million) had access to safe drinking water till 1990 (UNICEF, 1991). In the Central hill region, 27.7% of the population had access to piped and tube well water provided by the Ministry of Panchayat and Local Development (MPLD) and Department of Drinking Water Supply and Sewerage (DWSS) till 1985 (Table 24, p. 147, UNICEF, 1987). However, the 250 households (approximate 1500 people) of Bosan village do not fall within this lucky lot of 27.7 %, in spite of being only eight kilometers away from the heart of the capital city, Kathmandu.

Mr. Khatri (52 years old) says, "Only those girls with "broken karma (fate)" come as a bride in this village. Over here life is miserable for women". Mr. Khatri's opinion was echoed by almost all of the respondents. The reason for the miserable life of women is acute water scarcity (more than eight months). Women travel uphill on difficult terrain with a back load of water for hours. Just for one

pitcher they travelled up to 3.5 hours. Of the 25 cases interviewed, only 28% of the times men and boys helped in water fetching. That also during women's "untouchable period" and/or if they wished to. Fifty six percent of the times, girls had to fetch water either alone or to help their mothers.

The respondents reported using plenty (enough) of water for drinking, cooking, and livestock. For dish washing they used water moderately (reduced quantity). For cleaning the house they used water sparingly (very little). Only eight percent of the households had toilets and used water sparingly. Most walked down to the river for face washing, bathing, and washing clothes.

Like their urban counterparts, Bosan women postponed cleaning homes, bathing and washing clothes. However, unlike their urban counterparts, they did not feel ashamed of unhygienic and insanitary condition in their homes. Their only concern was that they were spending too much time and effort in fetching water which could be diverted to raise family income. They wanted to get training and employment. They also expressed a desire to raise livestock and do agricultural work if they had adequate water. All women respondents said that they could sleep and rest adequately if they got sufficient water in their village. Most of them slept only a few hours (less than four hours) at night. Surprisingly, none of the male respondents (40% of total) mentioned this. Like their urban counterparts, Bosan women dreaded guests, lest they could not offer enough drinking water and get criticized for being stingy and bad managers.

TABLE 1: Regression Results: Amount of water used by the households			
Variable	b	Standard Error	T-value (Significance Level)
Time Spent in fetching water	-0.93	0.73	-1.27 (.21)
No. of livestock (Cattle & Buffalo)	1.57	0.49	3.15 (.004)
Family size	1.06	0.27	3.97 (.000)
R <sup>2</sup> = .69		No. of observations = 25	

Table 1 shows that variables, number of livestock and family size show significant positive relationships to the amount of water used by the rural households of Bosan. The amount of time spent in fetching water has an inverse relationship but it is statistically insignificant. This indicates that demand for household water is inelastic with respect to the time spent for fetching. No matter how far away they lived from the river, they have to get the water to meet minimum household necessity. For an average family size of six and average livestock number of two, the average amount of water used by the households was eight *gagris* (local water pitcher taking approximately 20 litres) per day, and the average amount of time they spent in fetching water was 1.7 hours per *gagri*. Hence, on an average Bosan villagers spend about 14 hours per day to fetch water. As one respondent put it, "One person from the family has to be engaged full-time in providing water for the household".

Elder villagers of Bosan (32% of the respondents who are above 50 years of age) thought deforestation was the cause for water scarcity. They argued that when they were children they saw big trees in the forest above and there was enough water in the village. However, younger people believed in 'divine curse' (popular story) for water to sink under the earth. They never saw water flow in their lifetime. No matter what they believed to be the cause of water scarcity, all of them had faith that some day there would be water in their village. They hoped that people with knowledge would find some ways to bring water to Bosan. Women were especially hopeful, if not for themselves for their daughters and daughters-in-law.

### CONCLUSION

Respondents (male and female) unanimously agreed that household water management is the responsibility of women. The scarcity of water detrimentally affected Nepalese women's welfare and productivity. In addition to these, scarcity of water adversely affected the household environment, making it unclean and insanitary. This in turn affects the family's health adversely. Hence, to improve household environment, to improve welfare of women, and to increase their productivity, delivery of adequate water is an imperative.

### RECOMMENDATIONS

In consideration of delivery of service, the pertinent questions are "who pays?", "is it cost-effective?", and "what is the recovery period?". In case of water delivery, cost/benefit analysis is not as simple and easy as it appears. The benefit of water delivery system can not always be measured in direct monetary terms. However, as water is the most basic of basic human needs with profound implications to productive activities, the cost/benefit analysis should take an unconventional and comprehensive approach.

Not having adequate water affects the family's health and women's welfare and productivity. Hence, benefits of providing adequate water can be both non-economic and economic. Family health and women's welfare fall within the non-economic category, to which we cannot assign comprehensive measures of economic value. However, the present social value assigned to this is very high and can have corresponding economic value in the

long run in terms of avoided social cost of reduced morbidity and increased productivity.

Urban respondents are willing to pay for adequate water of good quality. Rural water delivery may seem costly in terms of recovery. However, one has to assess the social and economic cost of not having water in the villages. This can be done by assigning value to women's time. The opportunity cost of women's time in hauling water can be assessed by estimating the value of their income generating activities and their non-income generating activities. The value of income generating activities can be assessed by market wage rate and product price. The value of non-income generating activities can be assessed by the replacement cost of those activities, e.g., if a woman uses time in child care, the value of her time can be assessed by the cost of care in a day care centre or care by a maid. If a woman prefers non-income generating (household) activity, the shadow price of that activity is higher than the cost of services outside.

Girls' education is recommended for sustainable development (World Development Report, 1992). However, in rural areas girls have to help their mothers in homemaking. In Bosan, girls were found to haul water 56% of the times (either by themselves or to help mothers). It was observed that absenteeism from school was common for girls, especially because they had to haul water and collect fodder. Very few Bosan girls went to a secondary level school. While assessing benefit of water delivery, the avoided social cost concept is useful apart from the directly observed economic benefits. These costs are the short term loss of educational opportunity for girls, the long term loss of their future wages, and resultant long term loss in the family's socio-economic welfare resulting from the loss of educated homemakers. Educated women have more opportunities for productive off-farm employment which is a vital source of income as the farm size decreases. They have smaller families, healthier and better educated children.

Finally, the erroneous belief that water delivery is a luxury should be eliminated. The assumption that women's time has no value should be rejected. Water supply becomes very expensive in the present situation of no water delivery, when you count the value of women's time. In this context, there is under investment in the water delivery system in Nepal. It is

worth investing, even if it has a long recovery period and requires costly measures.

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