



WATER, ENVIRONMENT AND MANAGEMENT

Women and rural water supply projects

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1.0 INTRODUCTION

In rural areas of developing countries women are principal users of water supply system. In quite a large number of rural areas in developing countries women are still the universal water carriers, spending from one to six hours a day in water collection. They spend many hours carrying water on their heads or back in heavy pots and buckets. Women decide where to go to collect water in rainy season and where they can still find some water during the dry season. They also judge how much to collect at a time, how to store, use and reuse water and how to minimise eventual loss. In hilly and mountain areas collection of water remains one of hardship and strenuous work for women.

1.1 Objectives:

The three main objectives of this paper are as follow:

- * to put forth and re-emphasise the latent role and direct impact of women activities in rural water supply projects of Nepal.
- * to reinforce the scenario put forth by case studies.
- * to list some of the recommendations based upon the above mentioned scenario and case studies for preparations of action plans, their implementation, monitoring and evaluation.

2.0 ACCESS TO AND CONTROL OVER RESOURCES

Any project or programmes to improve the situation of water supply for a village must take into account women's access and control over resources in terms of:

- The effect of water scarcity on women's work load as the women often have few income-earning alternatives, their times in fetching water may not seem as cash investment by men who control family spending.
- The environment and women's income : Environmental deterioration due to lack of cleanliness and hygiene and lack of water in other areas like agriculture not only influences the family health and village life style but it also limits the agricultural output, possibility of cattle farming and other employment opportunities.
- While considering women's control over resources the following problems should be addressed :
 - Who has access to and control over sources of water and the means and ways to tap them?
 - Who controls project formulation, its implementations and execution for improvement of W/S situation in villages?
 - Do women have any say or participation in the decision making of these activities?
 - Have women been prioritized or preferred for technical education, training, job or employment in this area?

2.1 Recent Changes in the above due to Environmental Changes, Modernization etc.

Both positive and negative impacts have been observed in the

impacts are due to inputs like attempts to increase the literacy and educate women. This has not only increased the opportunities for their engagement income generating activities but also the liquidation of such difficulties like ignorance, superstitions etc. It has taught them to use water properly, conserve it and be aware of the limitation and availability of water. The emergence of women professionals in water related areas like engineers, technicians, etc. is sure to bring positive impacts in the magnitude of their involvement.

Negative impacts are due to the loss of control in such important areas like population, pollution and poverty. Uncontrollable increase in population, ineffectiveness of measures taken for elimination of poverty and consequently the pillaging and pollution of nature and environment are the major problems faced. The brunt of all these problems are mostly borne by women. Due to uncontrollable increase in population the women have more people to look after, more washing to do and more water to fetch. But no significant change has been marked in the relation of water and its availability to women and consequently to their whole family after so called 'modernization'. The damages due to indiscriminate industrial and human encroachment without planning may be practically irreparable in due course of time.

2.2 Concrete Problems due to Environmental Changes, Modernization etc.

- Scarcity of water (due to loss of resources after deforestation) etc.
- Loss of existing and working sources of water due to landslides, flood, excessive sand extraction etc. (e.g. the recent covering of sources of water at Siddhipur Water Supply Project, Chadampur Water Supply Project, Sankhu, in Thaiba Harisiddhi in Patan district).
- Pollution of rivers, wells etc. (due to poor planning and direct discharge of sewage and other wastes).
- Indiscriminate industrial pollution (no control over emissions into the biosphere).
- Direct out fall of raw sewage drains into rivers, defecation near drinking water resources.
- Health hazards due to water borne disease like - Typhoid, diarrhoea, dysentery, jaundice are frequent in the villages.
- Chemical pollutants of diverse nature derived from industrial and agricultural wastes are increasingly finding their way into Public Water Supply.

3.0 EXPERIENCE OF WOMEN PROJECT/PROGRAMMES IN THE SECTOR/ACTIVITY

3.1 Cast Studies/Personal Engineers

Some of the projects completed or currently being managed during my tenure as project in charge are given here as case studies. They will help to identify some of the issues related to women involvement.

3.1.1. Balkot Water Supply Project :

Completed in 1985, it was designed to serve 4000 people. A reservoir of 200 cubic meters was constructed to collect the total available discharge of 3.0 litres per second from two sources for distribution to the population. Within a short period due to availability of water and a reliable and steady transportation facilities (good road and trolley bus service) and closeness to city (only 7.0km to Kathmandu) the land price there has skyrocketed and the population has increased the water demand and put a very big strain in the water supply system. According to a recent study, with better management of existing wells and construction of infiltration galleries, the problem of inadequacy of water can be solved to a large extent.

3.1.2 Luvu-Lamatar Water Supply Projects :

This village is situated some 11.0km from Kathmandu - the project in which I was involved was for wards No. 3 & 4 with some 5000 population. The source used was a spring known as Thado Mool. The works undertaken by me in this project were construction of a reservoir of 1000 litres capacity, laying out of 2.0km of pipe lines and construction of five tap stands. But the harassment faced during the work were of some emotional importance of a woman engineer like me. Knowing that a woman engineer was in charge a local youth club tried its best to disprove my attempts. Without any consultation with the project authorities, or prior notice or information, they forwarded to higher authorities an application noting that works were not being carried out according to the villagers will and that the works were of poor quality. However, upon investigation by the higher authorities and concerned villagers, it was substantiated that the works were indeed as per the wishes of the villagers and that quality of the works completed were satisfactory. It would have been better if they had consulted the concerned technical person like me before approaching the higher authorities. On the other hand the women in those localities were quite active and co-operative. It was a pleasure to note that they would visit in delegation to our office to discuss their problems in fetching drinking water. When I talked to them I found out that they were basically worried time they spend in fetching water lesser they will have it for their other necessary household works.

Some of junior technicians were not in a position to digest my presence as a women engineer, and as their supervisor. they tried their best by plotting against me and they tried to involve the villagers too. They mobilized most of the junior staff and tried to get me transferred by the authorities. but in due course it was revealed to everyone that these junior technicians not only were unco-operative but also tried to get me transferred just because they could not see me a woman engineer working honestly. That was a real challenge for me to overcome.

3.1.3 Manikhel Water Supply Project :

With a population of 2500 people and situated at some 32km distance from Kathmandu Manikhel is the biggest settlement in this area. The main occupation of the people is agriculture. The two spring sources for the project is at Tike Dhunge mool at a distance 3.0km from the settlement. A ferro-cement reservoir of 20m³ capacity and 20 Public tap stands were constructed. The total cost of the project is about 1.4 million Rupees. In addition to it, pipe laying of nearly 8.0km and construction of two valve chambers, two break pressure tanks were included in this project.

While going for supervision in this project the women used to come and see us in groups but they would not talk to us. They did not show any interest when it was explained that we were there to help them to get water. A widow of about thirty years came and talked of her domestic affairs but did not believe that the government people like us would help them with water supply. She said what the government people do here is just get some entertainment and return?. When told to send her only son for a job in town with us to have some relief from poverty, she disagreed saying she can not believe in us. The women were

rather ready to continue their lives in extreme poverty and needs rather than to venture something or to show some activities. This is mostly due to the absolute illiteracy and lack of consciousness in them.

3.2. Women's Priorities and Special Concerns in the Sector

The involvement of women in the Engineering field is practically negligible. The total number of women working in water sectors like Rural Water Supply System, irrigation, hydropower is only 3 or 4. The popular belief in Nepal, both from a cultural and social view-point, is that an engineer's job is not for a lady for she can not afford to do it both physically and socially. Most of the families in the society are reluctant to let the female members from their families work as engineers. This is the time to tap the huge and practically unutilized women power potential in all possible areas for development of the country mentally, morally and physically. The time is to fathom the extent and depth of the problems and to find out the special dimensions to the solution of problems that the involvement of women can add. The right attitude, care and priority given to women's roles, can result in their enormous qualitative and quantitative improvement in development attempts.

It is my strong conviction that more women professionals should go to construction sites and field work in Rural Water Supply works. Women's involvement in this area could bring much better positive impact both in magnitude and direction of the works.

Furthermore, the support, help and encouragement which are demonstrated by family members are invaluable in achieving something concrete in such area of work. The understanding and encouragement shown by most of the senior engineers and colleagues also contributes greatly to the success of the projects and serves the rural people by making them available to them such a vital necessity as water.

There are also some dark sides in my experience. The lack of proper co-operation from administration and its attempts to degrade me were sometimes very disappointing. The attempts from the junior technical staff to disobey and harass just because I am a woman and engineer were not frequently easy situations to tackle. Very often lack of minimum facilities and co-operation, which could be easily provided from the administration sector, hinder work in the projects. In addition the attempts of a woman engineer to work with the necessary full authority, and her successes are looked upon not as noteworthy and appreciable but as some kind of undesirable challenge by the male chauvinistic society of Nepal.

4. RECOMMENDATIONS FOR DIFFERENT LEVELS AND TARGET GROUPS

The guidelines for incorporating women's input and concerns in planning, project implementation, operation and maintenance, training and monitoring and evaluation in the water supply activities can be classified into different levels with different target groups as follows :

Table 4
Table of Target Groups and Levels for Recommendations

S.N.	Level	Target Groups
1	Rural	i) consumer women ii) housewives iii) women workers
2	Societies and families concerned	i) husbands ii) guardians
3	Nationwide	i) employment agencies : government, public and private ii) educational institutions. iii) professional women.

Source : Prof. Dr. H.R. Joshi, Institute of Engineering, TU.

4.1 Rural

Involvement of women will commence at the planning and design stage and will be well co-ordinated with the construction, operation and maintenance of the water supply scheme. Women's views and recommendations should be taken into account regarding the selection of sources, the siting of tap stands and the organization of labour.

The directly concerned target group in rural areas are consumer women, housewives and women workers. Due to illiteracy and lack of consciousness these groups of women in the rural areas are very difficult to mobilize or to attract to such activities mentioned. The only way to attract them and mobilize them is by convincing them and by showing the importance of their participation. For this purpose active young and interested women should be trained and they should disseminate the whole idea and importance of women's participation at this level to convince and to encourage their participation and involvement for their own benefit.

4.2 Societies and Families Concerned

One of the reasons for the difficulties and backwardness in women's life in our country is the second rate status and negligence that we award to women in the society. The husbands, brothers and other guardians should be fully aware of the difficulties their wives, sisters, daughters and those in laws are facing to carry water, to wash clothes, to cook etc. due to unavailability of and inaccessibility to water. They should be explained, convinced and made to help, co-operate and look at them sympathetically to minimise their difficulties. An awareness, a caring for and a loving of women, should be cultivated in them and its importance for their all round development should be imparted to them. Exemplary behaviour should not only be encouraged and appreciated but also should be awarded.

One of the practical ways to achieve the above is by substantial investment in women education. The girls should be encouraged to attend school even by providing sufficient stipends so that the poor families will have some compensation for sending their girl children to school. The importance of women and the desire of the people to involve them actively in all decision making is achieved by enhancing the overall status of women in the society. Their status can be enhanced to some extent by giving them opportunities to be professional, by letting them have contacts with peoples of different walks of life, by letting them inherit property on equal footing with men etc.

A change in social viewpoints, that women are not entitled to take part in decision making and other important village activities like water supply schemes etc. can be made basically by educating people - women and men. Parallel to basic education the basic knowledge of birth control, public health, child care, women care, should be given to everyone through different media like school, adult education etc. The knowledge imparted should be practical and result and benefit oriented so that they are not only convinced but also eager to adopt them.

4.3 Nationwide

In order to increase the participation of women in sectors like water supply schemes their recruitment should be encouraged by all means to increase their number and consequently the participation. For this purpose their employment agencies should do it by providing quotas for women candidates whenever they fulfil the basic requirements. The government should start by allocating women quotas in recruitment of employees in concerned offices and should encourage the

public and private institutions to do the same by awarding financial support or by making laws. The present trend of providing a girls' quota in technical education is commendable and should be extended. The present quota of 10% girls among students in the Engineering Institute should be raised to 15-20% or more.

A course of studies should be prepared and introduced in school and university courses regarding the importance and necessity of women's involvement in rural water supply schemes.

The professional women already involved in this area should be made aware of their importance in participation. They should be encouraged to extend, share and disseminate their skill, knowledge and experiences at different levels of societies through direct contacts. Their activities should be encouraged and awarded enough to make it infectious to other groups of women too. For this purpose their basic difficulties like child care and other female duties and responsibilities should be facilitated at least by extra leaves, hours off for breast feeding, extra financial support for child care etc.

4.4. Research Needs/Gaps

The qualitative and quantitative effect of involvement of women in water supply schemes and its impact on rural women's life style should be studied and recorded in tangible ways. The areas, ways, approaches, long term and short term goals should be fixed by in depth studies and surveys. A discipline of women's involvement and its importance in water supply and sanitary schemes should be developed and included in university and school courses. Different concerned sectors like WECS should help to develop this curriculum and to introduce it as soon as possible.

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