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TOWARDS THE MILLENNIUM DEVELOPMENT GOALS

The importance of looking back study in WATSAN projects

Yubraj Shrestha, Nepal

THE DECLARATION OF the Johannesburg World Summit stated that the proportion of people without access to safe drinking water and basic sanitation should be halved by 2015. In order to meet these targets in Nepal where drinking water and sanitation coverage are estimated at 71.6% and 25.0% respectively, an additional 500,000 people will need to be served by water and 700,000 with sanitation each year. Recent sector financing studies indicate that the current resources flowing into the sector are insufficient to meet these targets. Profiles of 22 districts indicate that 76% of schemes need major repair or rehabilitation and this is recognized in the government's 10th National Plan (2002), which states that most of the drinking water systems built in the past have become either totally or partially defunct.

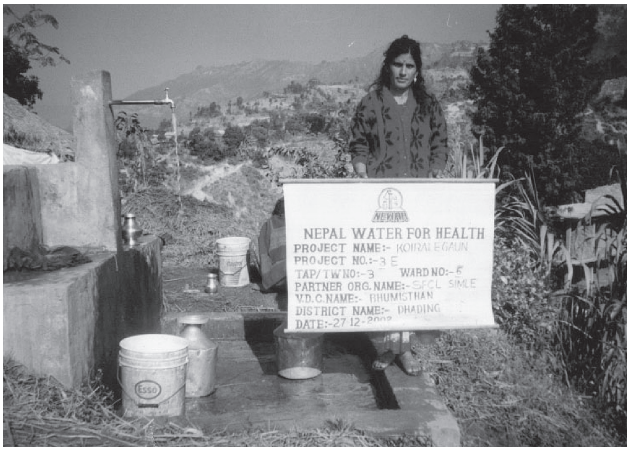
Given the scenario outlined above sustainability is a key issue and Nepal Water for Health (NEWAH), the largest NGO working in drinking water and sanitation sector in Nepal believes that projects it supported should continue functioning for many years. NEWAH initiated an innovative "*Looking Back Study*" (LBS) in 2001 that aims to assess the current status of NEWAH supported post completed integrated water, sanitation and health projects and lesson learnt for future improvement.

The purpose of this paper is to share the findings of the study and advocate the need for other agencies to undertake similar research.

Methods, tools and materials

The study uses the following methods, materials and tools:

- *Participatory method with the following tools were used*
- *Key informant interviews* with Project Management Committee members, caretakers and implementing partner organization members to get a brief overview of the status of the project
- *Village walks and semi-structured interviews* to observe the entire project (every tubewell, tap stand, source, tank) and interview users of every water point to assess the service level and identify problems
- *Community meetings* to discuss the project status with the community and provide feedback on the findings of the visit and make recommendations on how management can be improved
- Different materials were used during the study. Camera, project information board, geographical positioning system (GPS), iron test kit and arsenic test kit
- *Photographs* of every water point, tank and source are taken with the caretaker/users holding a signboard detailing the project name, location date and the component. The photographs are converted to a digital format and a slide show of the current status of each individual project produced. These photographs are a useful complement to the questionnaires and provide those who have not visited the project site with a visual record of its current status.
- *Water quality testing* – **iron** and **arsenic** (tube well projects only)
- *Data entry and analysis* – all data are entered in a Microsoft Access database for storage and analysis (simple statistical analysis such as tabulation, frequency distribution, averaging, graphs)





Sample

Nepal is a geographically and culturally diversified country. In the North there are Hills and Mountain in the South are the Terai plains. Water supply technology differs from hill to plain. Gravity fed system in hills and tube wells in Terai are the widely accepted technologies.

The study is a census of all NEWAH projects completed before 1998 (320 projects both in hill and terai). Projects completed post 1998 are not included because they are visited under NEWAH's regular maintenance follow-up program.

Result

To date 110 projects have been visited and data entry completed for 74. Some of the results are presented below.

LBS results in 49 gravity fed system projects in hill regions

487 water points (469 taps and 18 spring protection) have been visited to date of which 52% are functioning to design capacity, 36% are functioning but require attention and 12% are not functioning.

The results show that communities regularly successfully undertake minor repairs and maintenance. However despite these efforts a number of tap stands cease to function due to either external or internal factors. External factors include damage to sources during floods and to pipelines during road construction or landslides, lime encrustation; reduction in source yield and resolution of these issues is often beyond the capacity of the community. Internal factors identified include social conflicts, cutting pipelines for irrigation, adding household connections to the system and are the result of the failure of the Project Management Committee to control the behavior of the community.

LBS result in 25 tube well projects in plain (terai) regions

1054 water points (1021 shallow tube well, 18 deep tube wells, 15 hand dug wells) in 25 tube well projects have been visited to date. Of these water points 34% are functioning to design condition, 39% are functioning but require repair, 16% are not functioning and 11% could not be located and it is assumed that they ceased to function and have been removed.

In tube well projects a number of management, technical and social issues have been identified:

Management

- spare parts for Nepal No.6 pump are not locally available
- Project Management Committees are not active
- Users are not collecting a maintenance fund on a regular basis
- Central maintenance funds have been misused by local elites

Technical

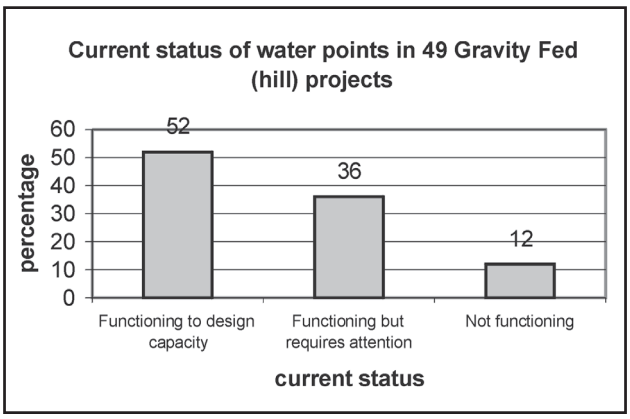
- cracked platforms
- inadequate drainage away from the platform
- damaged PVC filters resulting in muddy water or no water flow
- corroded GI top pipes resulting in muddy water or no water flow
- damage to GI pipes and filters during hammering
- iron content
- simple pit latrines collapsed due to monsoon rains

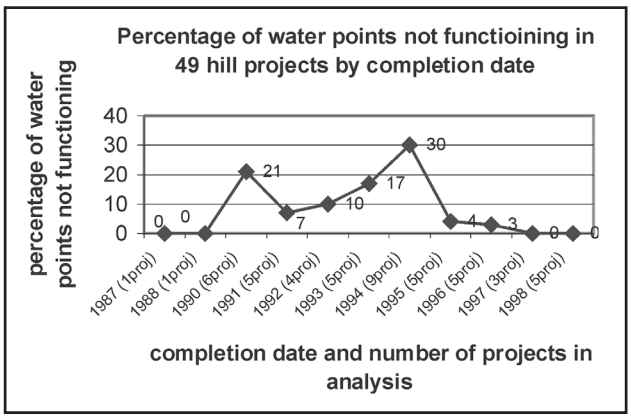
Social

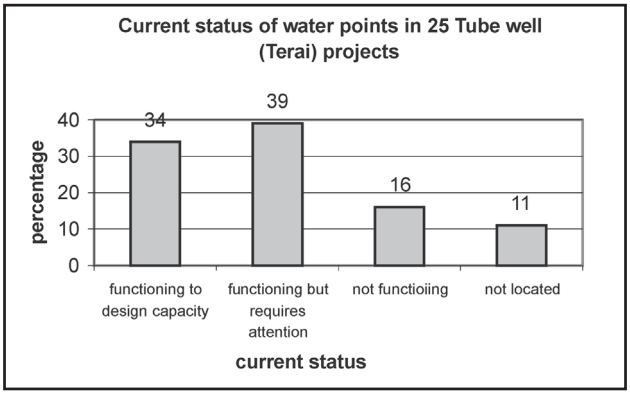
- many tubewells are located on public land on the side of roads providing no privacy for users; some are locate on private land resulting in social conflicts

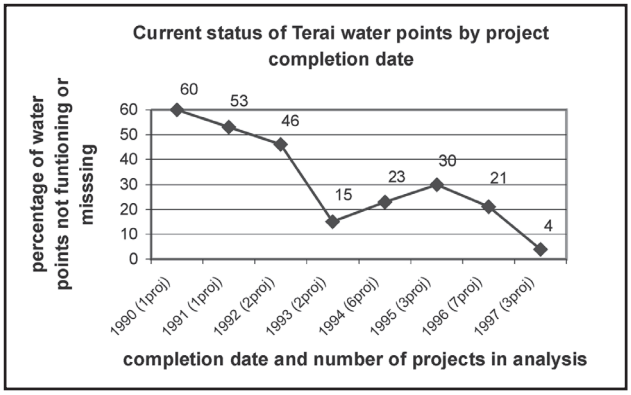
Water Quality

Iron content in 861 Terai tubewells			Arsenic content in 138 Terai tubewells		
ppm	tubewells	%	ppb	tubewells	%
less than 4 (WHO standard)	709	83	less than 10 (WHO standard)	106	77
4.1 to 9.9 (Nepal standard)	116	13	10 to 49.9 (Nepal standard)	27	20
10 and above	36	4	50 and above	5	3









Iron content was tested in the fields using HACH iron test kit. Only 4% of total measured sample exceeds the Nepal standard. Red plate form and black teeth are some of the visual indicators of iron content in water. If it is too high an unpleasant odour felt and people dislike drinking it.

Arsenic tests were carried out in the field using a PeCo 75 test kit (best accredited by US Environmental Protection Agency). The company stopped producing these kits in 2001 and therefore our testing programme has been temporarily disrupted. The history of arsenic in Nepal is new and people have not noticed the impact of it

Changes in the user population

change is user population (households) of functioning water points			
	at end of project	during LBS visit	change
Hill	3824	4588	19% increase
Terai	7509	5100	32% decrease

As would be expected the aggregate user population of gravity fed projects has increased over time. However in tube well projects the user population has decreased as many households have installed their own private tubewells and no longer have use the NEWAH supported community tubewell.

Conclusions and lessons learnt

The community management approach and technologies used in gravity fed projects have been found to be largely appropriate. However during the life of a project a community will face challenges it is unable to tackle alone. In the vast majority of cases local government has been unable to provide this support and the latest government Draft Rehabilitation Policy (2003) clearly states that rehabilitation is the responsibility of the implementing organisation. Therefore if water supply systems are to continue to serve communities to the end of their design life and beyond they require support. Looking Back type studies followed by a targeted support programme can provide a cost effective way of providing this support.

The community management approach in tube well projects has been largely based on the hill model. The study shows that this model consisting of a large project area, project management committees, a central maintenance fund and regular fund collection is neither appropriate nor sustainable in the Terai environment. The supply chain for pump spare parts is inadequate and a number of technical issues regarding filters, GI pipes, water quality and platforms have been highlighted. These findings are leading NEWAH to experiment with new innovative approaches.

The Looking Back Study is a huge source of learning for NEWAH. It provides staff a unique opportunity to revisit their work and that of their peers and reflect on their practices. This cycle of observation-reflection and discussion is stimulating our organisation to become more feedback driven and self-critical resulting in better quality project work and greater knowledge which is being shared throughout our sector.

NEWAH is using the findings of the Looking Back Study to:

- Implement an *Utthan* (upliftment) programme which will revisit a small number of projects in need of support and work with the community to strengthen the project and increase the chances of sustainability. The approach adopted is based on the principle of participatory problem solving and differs from rehabilitation and extension activities in that community management and capacity development are given priority;
- Adapt improved approaches to new projects to address the issues identified by the study.

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