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WATER, SANITATION AND HYGIENE: CHALLENGES OF THE MILLENNIUM

Partnership for sustainable solutions

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PRESENCE OF EXCESS Fluoride in water causes dental and skeletal fluorosis in addition to several ailments such as body aches and head ache, gastrointestinal problems, and also neurological, muscular and urinary tract manifestations. The problem has been a concern in many developing countries including India where excess of fluoride in water affects approximately 25 million people living in 8700 villages (NEERI, 1992). Gujarat is one of the Indian states where excess fluoride has been a cause of concern. Most of the water supply systems are conceived and implemented as engineering projects with very little scope for the involvement of people in the planning, implementation and management of the project. In the project district of Mehsana where 300 villages are affected, an attempt has been made in one village to illustrate the demand driven approach by fostering partnership amongst the communities, corporate and implementing agency.

Project background

Over past few years Aga Khan Foundation (India) (AKF,I) and Muniwar Abad Charitable Trust(MACT) have worked to improve the rural water supply and sanitation services and health and hygiene practices in a large number of villages located through out the districts of Patan, Mehsana and Junagadh in Gujarat. With financial support from international donors agencies, different departments of government of Gujarat, the Aga Khan Development Network (AKDN) and the villages with in the project areas, the implementing partners have installed infrastructure, motivate villagers to contribute the labor, material and cash needed to support project implementation and the operations and maintenance of the installed systems, and offered households the information required to practice behaviors conducive to protecting health. The key principles of the project are:

- the community role is central to the project and play an important role in the decision making and managing the local activities through creation of Water Committee;
- partner organization (MACT) plays facilitating role in assisting communities to develop the necessary competence, skills and institutional capabilities to participate in the planning, implementation, operation and maintenance and management of facilities and also facilitate partnership with private sector;
- communities contribute to the cost of water supply and sanitation services;
- encourage women's participation in the program.

Partnership building:

Building partnerships is the most challenging aspect of community development programs. The key partnership features adopted in this program are as follows:

- partnership between community, Water Committee, implementing agency and private sector company, Ion Exchange Limited and donor agency;
- fully active community participation both within communities (using the de-fluoridation plant and purchasing water) and between community and project;
- well defined inputs and commitments of each partner organization;
- intensive training to Water Committee members on team building, group dynamics, basic financial management, operation and maintenance of the de-fluoridation plant, monitoring;
- sharing of technology, knowledge and skills between partners;
- felt needs of community identified through participatory appraisals;
- Orientation and training of members and staff of all partner organizations regarding community organization, community management, team building and technical aspects of De-fluoridation plant including installation, operation and maintenance etc.

Approach towards building partnerships:

The program has several components for fostering partnerships with communities and corporate.

Community dialogue

MACT staff initiated a dialogue with the community leaders and members of some religious groups and was then asked to share the project details in a village general meeting (Gram Sabha). This process helped in sharing the integrated water and sanitation program approach and understands t he priority issues of community. People perceived water quality as a major concern.

Water quality testing

samples from drinking water source, distribution system and household storage pots were analyzed for physical, chemical and bacteriological parameters. The water source indicated a fluoride level of 1.5 PPM and bacteriological contamination was found in household storage pots.

Community mobilisation and formation of Water Committee

Through participatory appraisals across various clusters/ class groups, the team identified people understanding of quality of water and in the process learnt some beliefs and practices regarding water use. Through number of interactions and meetings with the community, leaders and members of local authority (Panchayat), a formal body of community representatives (named Water Committee) was proposed and created with responsibility of managing the water supply systems. MACT acted as a facilitator and entered into partnership with the committee on one hand and searched and identified a private sector partner (Ion Exchange Limited) for bringing appropriate technology to the village. (Primary roles of different partners are given in table below).

Techno-feasibility study and obtaining community approval

MACT in partnership with the committee members and other volunteers from the field carried out a detailed survey of the existing water distribution system to analyse the compatibility of available technical options and also optimising the water distribution in the village. The results of the study were shared with the community along with a comparative matrix of detailing operation principle, physical description, space, chemical and energy requirements, application flow range, raw water quality, operation complexities, operation and maintenance and cost implications across Nalgonda, Ion Exchange and Reverse Osmosis.

The Ion Exchange unit was selected jointly by the communities and MACT as:

- the capital investment is only 12 per cent that of Nalgonda technique or Reverse Osmosis;
- the cost of operation and maintenance is same as that of Nalgonda and much lower than Reverse osmosis;
- the use of hydradose can assure dis-infection of the unit;
- simple operation and easy maintenance;
- the quality of available purified water is acceptable as fluoride contents may be reduced up to 0.7 PPM.

Table 1. Roles of partners in the program

S.No	Ion Exchange Limited	MACT	Water Committee
1	Technological research for appropriate and affordable technology at village level	Identifying the specific nature of the community needs	Articulating the communities needs
2	Training of MACT staff in technical details (installation, functioning and O& M) of De-fluoridation plant	Search and identify the technical partner	Providing space for the plant & taking responsibility for O & M
3	Training of Water Committee members for O & M	Support the technology transfer	Collecting revenue and keeping the accounts
4	Provide maintenance services	Train the community members for community dynamics and management, basic financial management and monitoring	Resolution of differences at the village level
5	Prepare the operations manual for the use of village committee	Bridging the gap between the users and provider	Sharing the experiences with other villages
6	Propagate the results and share the lessons from the project	Documenting, sharing and propagating the lessons and experiences from the project	

Resource Mobilisation

Community contribution was collected through the Water Committee by opening the membership of the committee for purchasing the purified water. MACT agreed to ensure the availability of resources for the Ion Exchange and Hydradose equipment (about US$ 2000) and community agreed to mobilise 100% cost of installation, operation and maintenance fund (US$625).

Installation and operationalising the de-fluoridation plant

With the technical assistance of Ion Exchange Limited (IEI), India and through phase training of local plumbers, the de-fluoridation plan was erected. The committee members identified a local operator who was provided training by IEI. The committee members and MACT staff were also trained in operation and maintenance of the unit by IEI.

Ownership and responsibility

This community based and managed water treatment plant is functional since November 1997. The Water Committee has taken the responsibility of managing the plant with support from MACT and has entered into a direct annual maintenance contract with Ion Exchange Limited. The committee has appointed two operators; one for regular operation, maintenance and distribution and the other one for collecting the monthly payments and keeps the accounts. In the initial three months itself the number of households consuming de-fluoridated water increased substantially and resulted into higher revenue.

Lessons learnt:

- Convergence of competencies of each organization through partnership;
- Partnership leads to optimisation of the benefits of technology for improving the quality of life of people especially in the rural areas;
- Partnership induces willingness to pay for the quality service and maintenance of systems;
- Participation and partnerships leading to improve sustainability;
- Participation of women is extremely essential for success of the program;
- Building capacities of locally identified individuals ensures sustained service provision;
- Integrated water supply and sanitation program enhances the community participation
- Cost sharing by the communities lead to better appreciation of the infrastructure and help in better operations and maintenance;

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