

## Key Factors for Sustainability of Fluoride Management Programme with Special Reference to Rajasthan, India

P Vaish\* & A. K. Vaish  
India

**SUMMARY :** It is now recognized that the objective of supplying safe water cannot be achieved unless the community is mobilised to manage the water system. Government programmes for water cannot fructify unless the community is mobilised to own and sustain these programmes and to become an active partner in their promotion.

Participatory techniques are effective in the management of defluoridation programmes. Various types of IEC materials can be developed to support campaigns, training and communication activities. Key factors for sustainability of 'Fluorosis Mitigation Programme' are awareness campaign, motivation, training, development and display of posters, slogans, wall paintings, street play, puppet show, development of audio, video cassette in local dialect and based on local folk dance tune.

Such type of active community mobilisation scenario has been observed in the ongoing fluorosis mitigation programme which is underway at Aspur Block of Dungarpur district of Rajasthan, India. Cost sharing by the users, active functioning of Pani Panchayats has made the pilot project a success.

**Key words:** IEC material, Fluorosis Mitigation Community Mobilisation, Pani Panchayats, cost sharing, awareness campaign, training.

### INTRODUCTION

Drinking water of acceptable quality and required quantity is a basic need for humans, yet it is not within the reach of a large number of rural populations in the third world countries. Planning, implementation and management of water supply programmes in an area involve a complex formalised interactions among organisations, institutions and operation and maintenance, O & M, resources to carry out water resource assessment and supply and maintenance operations.

The communication among the three main groups involved is very essential. The consumers, i.e. the present and prospective local population, the producers i.e. the parastatal national organisation, and the donors, i.e. national, state and external financing authorities and agencies. Fluorosis management could be effective if we

---

\* SARITA (NGO), India  
E-mail: dveish@ubicef.org

follow various Information, Education, Communication, IEC, activities. These would automatically involve the community to actively participate in the ongoing programme. Besides, orientation and training programmes would significantly add to the success of such extension programme.

Fluorosis poses a grave public health problem in India and in some other developed and developing countries in the world. In Rajasthan State, India, 18 out of 32 districts confront with the problem of high fluoride concentrations in potable water sources, affecting more than 10 millions of its population. A pilot project for the control of fluorosis has been launched by a Non-Government Organisation SARITA NGO in Aspur Block of Dungarpur district of Rajasthan, since 1996 under the sponsorship of UNICEF. The programme aims to impart constant awareness to the target groups, short-term orientation training to the grass root level functionaries and active involvement of village level governmental machinery, i.e. revenue officials, schoolteachers and para-medical staff. The objectives have been achieved in last four years period and the ongoing programme appears sustainable, as the community has been educated and motivated to operate the programme within specified parameters.

### METHODS

Seven types of activities are launched to ensure the sustainability of fluorosis mitigation programme:

**Capacity Building.** The local population does generally not know the real cause of groundwater quality problems. Therefore, there is need of capacity building among local population, including teachers, sarpanchs, shopkeepers, para-medical staff, patwari, Public Health Engineering Department PHED helpers / lineman, social workers, village level animator etc. This can be done through constant motivation / awareness generation, to ensure self-sustained programme operation, even after completion of the programme. Capacity building may be attempted by:

- Organisation of district / block level meets of 1 to 2 days duration, before the commencement of the programme. In such meets, programme appraisal be attended including examination on the problems and the likely benefits accrued.
- Orientation training for grassroots level workers. Five persons from each village is considered for 2 days duration. Village level workers, Govt. school teachers, Sarpanchs, Panches, PHED officials, Patwari and local social workers be trained about the problem and likely remedial measures.
- Village level 'Mahila Groups' is constituted, as the drinking water issue is taken care of by ladies. In their fortnightly meetings, the contents of programme is discussed and queries are replied through demonstration / charts / brain storming practices etc.
- Communication, Education and Participation, CEP, meets of one day duration in each village, Village Contact Drive, VCD's of one day duration and 'Awareness Camps' should be organised periodically, e.g. twice in a year, to gear up the local capacities. Such an activity shall also reflect feed back of the performance.

- Cost sharing in terms of 'token money' at the time of delivery of defluoridation kits, subsequent cost sharing for maintenance of the programme, cost of chemicals and honorarium to local social workers who will carry out the job related to the programme is to be adopted by villagers.
- 'Exposure Trips' is arranged to other areas where similar programme has already been implemented.

**Institutional framework.** It is necessary to collect details about the institution looking after the schemes of water supply, Gram Panchayats, NGO's etc involved in the execution of the programme, government set-up efficiency in handling service delivery inputs, particularly procurement and distribution of contingent items. Local NGOs can be entrusted the task of popularising Information Education and Communication IEC or software activities. Private sector may also be considered partly for O & M of the pipelines, equipment, tanks, procurement of quality chemicals etc. Local health sector functionaries are considered as reliable resource persons. Therefore, every step should be taken to gather information about local health sector structure and capacities of persons working in the project area. Active involvement of these personnel is a pre-requisite for a successful campaign.

**Watsan committees.** Water and Sanitation Committees, constituted by village Panchayat / Gram Sabha, comprises members of the Gram Sabha or leaders of the villages or hamlets. The members of this committee must represent the entire community in the whole village including sub-villages, irrespective of cast, status and religion. Formulation of such a committee be made in a general village meeting in which Sarpanches, Up-sarpanches, Ward Panches and other people of the village should be invited. At this meeting, the purpose, the scope and the function of the watsan committee should be placed before the group for discussion and decision.

A watsan committee member should be: 1) A resident of the particular hamlet / village / ward. 2) A respectable person. 3) Willing for voluntarism. 4) Willing to attend training sessions; and 5) Willing to organise water and sanitation programme.

After formation of the watsan committee, the village Panchayat must take initiative to organise campaigns to create awareness about the importance of safe water supply. Periodic meetings of the committee be organised by Panchayat Raj Institution, head in the village PRIs. The PRIs can prepare plan of action for safe drinking water supply; choose technology suitable to them and execute centrally sponsored water management programme; can create awareness about hygiene practices; can organise training for masons etc. and can take the responsibility of boring wells.

The PRIs may also be involved in organising Jaths / Prabhat pheries in the village, in contacting local folk artists to include message of quality or other problems of available water for drinking purpose and in Providing feed-back to the Gram Sabha and the Panchayat Samiti.

**Willingness to pay.** O & M of the water supply facility by the village community (through local Gram Panchayat) are very important aspects of management

considerations for judging the sustainability of water supply programme. If such a facility has been installed by the PHED, the PHED staff may be involved for such purpose. If water supply has been executed by NGOs, then the responsibility of O & M campaign lies on Panchayat. The PRIs must impart training to local men and women through standard training modules to manage the programme.

Willingness to pay for such costs may be developed among local population, through constant awareness and by stressing about importance of the programme. This helps not only in terms of the actual functioning of the facilities but also is an important step by the community towards self-reliance. The responsibilities for the O & M of these facilities can be accepted by the community, formally through a resolution passed by the village Panchayat and subsequently approved by the higher Panchayat Raj Bodies. Proper record of recovery of O & M cost by the beneficiaries be maintained for keeping the transparency of the system.

A few tasks for effective O & M could be as follows:

- a) Defining the normal operating schedule.
- b) Defining the preventive maintenance schedule.
- c) Setting up the procedures for procurement of spare parts, chemical etc.
- d) Identified agencies / persons to carry out repairs as and when needed.
- e) Employing operating staff and ensuring training.
- f) Establishing back up support systems.
- g) Monitoring of performance.
- h) Arranging for collection of revenue / resources.

**Management of financial sources.** While formulating a water supply programme, it is very essential to frame out requirements of fund, mobilisation of funds and financial sources. Besides, government grants being received from the funding organisation, planning should be made for mobilisation of funds from the beneficiaries. The funds may be raised in the form of realisation of 'token money', monthly / yearly contribution of every household for O&M / recurring costs. PRIs may also be motivated to mobilize financial sources through local population. Under the presidentship of a 'Sarpanch', a committee of 2-3 members be constituted and a bank savings account be opened, from which money be withdrawn only by joint signatures of two members. Beneficiaries be asked to annually deposit their share / contributions in it. The community can elect a representative of 'Pani Panchayat', to play a leading role in the process of cost-recovery. A competent NGO would be of use in devising programme and workshop, as well as effective communication material to explain the situation to the community.

Financial source mobilisation (cost recovery by community) for O&M costs has three important implications:

- By having a financial stake in the water facility, a sense of ownership is created, which contribute to better O & M;
- The original sense of dependence, both financial and psychological, on the government ends and replaced by a feeling of partnership; and
- A sense of confidence is created in the community about the ability to make important financial decisions, based on a more complete understanding of these decisions.

Besides street play, nukkad natak, audio-vidio cassette display, puppet show, slogan writing, student rally, quiz, essay competition, posters, flip book, wall-paintings shall add in passing of the message regarding objective and importance of the programme being implemented.

**Application of IEC activities** in the ongoing fluorosis mitigation programme in Aspur block of the Dungarpur district of Rajasthan : The above referred IEC strategy has been adopted in a ongoing programme of fluorosis control sponsored by UNICEF. About 4 1/2 years have been passed and now local tribal population is actively involved in the programme alongwith PRIs, school teachers and para-medical staff. Due to regular IEC activities, the ongoing programme appears sustainable. Authors strongly believed that key to the success of fluorosis management programme is active community involvement and building up of the local capacities.

## **RESULT AND DISCUSSION**

Groundwater is the primary source of potable water supply in rural India. Deforestation and resulting soil erosion hamper the recharging of the groundwater. Hence, in India groundwater levels are decreasing. In Rajasthan, in the absence of perennial rivers, surface sources and canal systems, groundwater remains the main source of drinking water for about 95% of the population and it contain high fluoride content (2 to 20 ppm). Frequent (drought-prone situations, overpumping of groundwater and poor recharging) are significantly affecting the availability and quality of groundwater. Therefore there in need to properly manage this precious natural resource. Active community involvement through local NGO's is must in managing the groundwater resources and in supply of safe potable water.

Following measures shall go long way in the success of a fluorosis mitigation management programme :

- Inculcate awareness;
- Increased IEC / HRD activities be attended by PHED/ Medical and Health and Groundwater Departments for active people's participation;
- Urging villagers to use water from safe water sources, unsafe water sources be sign-posted;
- Installation of community based filters houses by Govt. so that excess quantities of fluoride, nitrate, TDS, chlorides and bacteria free water could be provided;

- NGO's be funded for service delivery systems at local level. They should be entrusted with the task of awareness generation, constitution of Pani Panchayat, mobilizing people's to involve in the implemented programme etc.

### REFERENCE

1. Susheela A. K. (1991): Technical information for training cum awareness camp for doctors, Public Health Engineers and other officers on prevention and Control of Fluorosis. Rajiv Gandhi National Drinking Water Mission, New Delhi.
2. Prerana Vaish & A. K. Vaish (1999) : Extension Programme through IEC activities in ground water management. Nat. Sem. on Ground Water Management Strategies in arid and semi-arid regions, (paper presented), organised by State PHED, Jaipur between 23-24 June, 2000.
3. Vaish A.K., Gyani K.C. & Vaish Prerana (1999): Fluoride, Fluorosis and Defluoridation Techniques, booklet, Environ & Health, 99, SARITA (NGO), Udaipur, February, 1999, 39p.
4. Gyani K.C., Vaish A.K. & Vaish Prerana (1999): Fluoride, Fluorosis and Defluoridation Techniques, Proce. of the Nat. Seminar Environ & Health' 99, 146p.
5. UNICEF, Jaipur (1995): Plan of Action, UNICEF assisted Pilot Project for fluoride control in Dungarpur district of Rajasthan, (unpubl.) 10p.
6. Deptt. of Community Medicine, R.N.T. Medical College, Udaipur (1999): Report for the Health and Epidemiological Survey of some high fluoride villages of Dungarpur and Rajsamand districts, Dr. Rekha Bhatnagar & Dr. Rahul Prakash (Unpubl.) May, 1999, conducted for UNICEF, Jaipur, 29p.
7. Deptt. of Community Medicine, R.N.T. Medical College, Udaipur (2000): Health and Epidemiological Survey of some high fluoride villages of Dungarpur and Rajsamand districts, (unpubl), conducted for UNICEF, Jaipur in association with SARITA (NGO), Udaipur, 38 p.
8. PHED, M.P. (2000): Booklet on International Workshop on Fluoride in Drinking Water: Strategy, Management & Mitigation, Public Health Engineering Department, Govt. of Madhya Pradesh, Bhopal (22-24 January, 2000), 27p.
9. Susheela A. K. (2000) : Fluorosis Management Programme in India, Current Science, vol. 77, No. 10, November, 1999, pp 1250-1255.
10. SARITA (2000): Fluorosis Mitigation Programme in Aspur Block of Dungarpur district of Rajasthan, India, Review and Recommendations, unpubl. Report, May, 2000; 9..