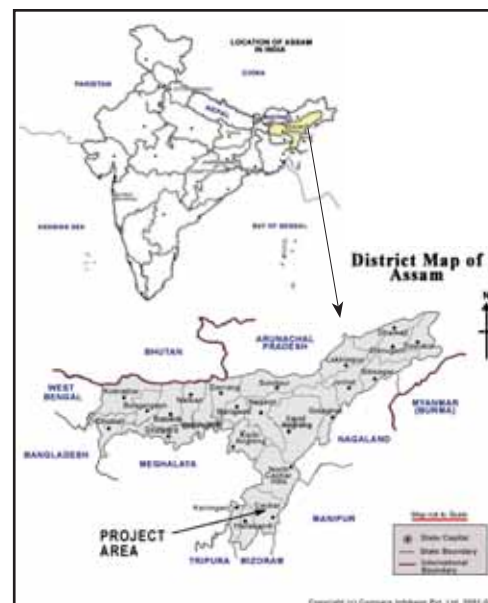


SODIS - WATER QUALITY IMPROVEMENT AT HOUSEHOLD LEVEL

A CASE EXAMPLE FROM ASSAM, INDIA

SUMMARY

SODIS promotion was carried out in Cachar district of South Assam, North East India during 2003-2004. Assam University provided the educational and technical support for the project that was carried out by two Partner Organizations in collaboration with different village-level institutions. SODIS promotion was also integrated at the village level with two community child improvement programmes run by the state government. A total of 24911 households in 116 communities representing over 120,000 individuals were sensitised. Of these, 48.6 % regularly use SODIS. A diarrhoea reduction study revealed a 40.01 % decline in diarrhoea incidences among SODIS users. The major factors for project success include the selection of an area with poor water supply and high prevalence of diarrhoea, PET bottle availability, high ethnic bondage, high participation rate of women and village-level institutions. Poor communication in a flood-prone landscape, low awareness levels and scarcity of competent NGOs are important constraints that need to be addressed in future.



THE CONTEXT

Water Supply and Quality

The project was implemented in the Barak Valley in the southern part of Assam state in North East India. The major drinking water sources in the project area are piped supply schemes run by the government, privately-owned dugwells, tubewells, ponds, as well as common property sources such as tanks, rivers, streams and springs. Due to poor sanitation and unhygienic habits of the people, many drinking water sources get contaminated. Even the piped supplies are contaminated due to old and leaking pipelines and insufficient or infrequent chlorination in the treatment plants. The analysis of 224 sources reveals a serious contamination of the drinking water: 53.6% of the water sources have a very high faecal coliform contamination of >100 CFU/100 ml, while only 26.3% have a medium contamination of 10-100 CFU/100 ml and 20.1% are slightly contaminated with less than 10 CFU/100 ml.

Health Situation

The heavy and widespread faecal contamination of the drinking water sources is reflected in the health status of the people. Based on data available it is assessed that about 38-46 % of all the diseases occurring in this area are water-borne enteric diseases such as diarrhoea, amoebic dysentery, gastroenteritis and bacillary dysentery. Mortality, especially of children below 5 years of age is high.

Political and Policy Aspects

Public drinking water supply is entrusted with the Public Health Engineering (P.H.E.) Department of the Government of Assam. While free supply was earlier provided to rural

consumers, presently the Government only installs the scheme, while 90 % of the maintenance costs are met by the community. The Panchayati Raj (Village Self Government) institutions are now increasingly being involved in the maintenance of rural water supply schemes.

Social Aspects

The project area is inhabited by a multitude of communities that include tribes such as the Dimasa, the Pnar, the Hmar, the Paite, the Veiphei, etc., as well as other groups such as the Bengalis (both Hindu and Muslim), the Bishnupriya and the Meitei.



Fig. 1: SODIS provides people a mean to improve the quality of their drinking water



THE PROJECT

Objectives

SODIS promotion during 2003-2004 had the objectives to disseminate SODIS to about 20'000 households, to monitor and assess the level of acceptance, to conduct a health impact and to widen the SODIS network to include other NGOs and the State Health Department.

Strategy

The Department of Ecology & Environmental Science, Assam University, Silchar (AU), facilitated this project. SODIS promotion and monitoring in the field is carried out by Partner NGOs (POs), with technical and training support from AU. This support was provided in the form of background information training in the correct use of SODIS, and necessary training material in the form of brochures, posters, leaflets, etc., in local languages. In the first year, it was planned to carry out SODIS promotion in two phases: an initial pilot phase of 2-3 months targeting about 600 households (representing ca. 3000 people) and then a dissemination phase targeting about 20'000 households based on the lessons learnt during the pilot phase. A participatory approach involving active participation of various village level institutions such as village councils,



Fig. 2: The majority of raw water sources is faecally contaminated



Fig. 3: More than half of the 20'000 households trained use SODIS

schools, health centres, youth clubs, women's organizations, is adopted to make the project community-owned and -managed, so that it can continue after the withdrawal of AU and POs. Essentially, SODIS has to be a 'two-way' project, so that sensitisation is followed closely by monitoring and follow-up actions to record users' responses, to ensure that SODIS is used correctly by the users, to address difficulties, if any, and to instil faith in SODIS and raise the acceptance level.

Actors

At the beginning of the project, the Environmental Society of South Assam (EnSSA), a NGO based in Silchar, the major city in Barak Valley, was selected as the PO for carrying out SODIS promotion in Cachar district. At a later stage, Meira Peibee, a women's organization of the Meitei community that showed keen interest in the project, and carried out SODIS promotion in several villages in the Jaraitala area of Cachar on their own, was included as a PO. During the dissemination phase of the project, EnSSA also networked with the Pioneer Sangha, a field-based NGO for SODIS promotion in Borojalinga area that is inhabited predominantly by the tea tribes.

The entire promotion, campaigning and monitoring activities were coordinated by the AU, with corrective actions suggested, whenever necessary.

Duration

The duration of the project was one year, beginning March 2003, with provision for extension for one more year. However, in order to make up time lost during heavy monsoon and floods, monitoring work was continued until September, 2004.

Financing

The project was funded by the SOLAQUA Foundation, with infrastructural and part of the logistic and human resource expenses borne by AU.

ACHIEVEMENTS AND FACTORS OF SUCCESS

Participation at household level

A total of 24,911 households representing over 120,000 individuals belonging to 116 communities in three distinct areas of Cachar district, viz., Srikona, Jarailtala and Borojalinga areas were trained. Subsequent monitoring revealed that of these, 48.6 % were regular SODIS users, 9.9 % irregular users, and the remaining 41.5 % were non-users.

Institutional cooperation

Although government cooperation at the state level with relevant departments could not be achieved during the first year, SODIS promotion by the POs was carried out through the women workers of the Integrated Child Development Scheme (ICDS) and Reproductive Health Scheme (RCH), which are part of the Department of Social Welfare and the Health Department. Thus, institutional cooperation could be achieved at a lower level. Presently, an understanding of cooperation has been signed between the AU and the education, social welfare and health departments at the district level. Cooperation for SODIS promotion in their respective areas had already been achieved with various Panchayati Raj (village and village-cluster level) institutions involving the active participation of village council members and chairpersons. The Meira Peibee also involved 11 schools where school children were approached and trained in SODIS use through their teachers. The sensitised children helped convincing their parents to use SODIS.

Water Quality & Health improvements

A pilot diarrhoea reduction study conducted by AU in Jarailtala (Meira Peibee) and Borojalinga (EnSSA and Pioneer Sangha) areas reveal a total of 40.01 % reduction in



Fig. 4: Water is not only contaminated at the source, but also by unsafe handling practices

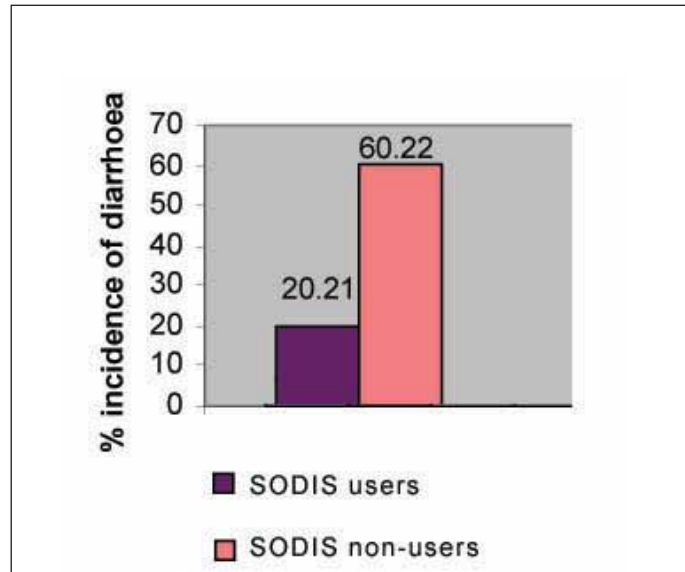


Fig. 5: Diarrhoea incidence in the project area

the incidences of diarrhoea as shown in Fig. 6. A by-product of SODIS project was the pond and well disinfection drive carried out by the Meira Peibee in areas affected by the flood in July 2004. The PO- trained by AU on the appropriate dosage- took initiatives to disinfect the contaminated drinking water sources like ponds and wells in the villages by training the villagers to add alum, lime and bleaching powder and at the same time reiterated the importance of SODIS in these villages.

Awareness Building

For awareness building among the target population, media, prominent citizens, government officials and interested NGOs, 1000 English brochures, 8000 posters in English and Bengali and 8000 leaflets in Bengali were distributed. The promoters were provided with charts for explaining the procedure of SODIS among the potential users. The impact of this is reflected in the large number of media reports in local and regional newspapers and TV programmes on SODIS.

Policy Changes

The District Health and other relevant Departments have agreed in principle to integrate SODIS into their ongoing programmes. The District Administration also accepted SODIS as a useful method to disinfect water during the recent floods.

Factors that facilitated above achievements

The major factor for the success of the project is the felt need among the people for microbiologically safe water to get rid of diarrhoea and dysentery. Absence of proper water supply, community bondage, the involvement of influential people and women from the community and sufficient access to PET bottles are the other important factors.

THE CHALLENGES

Constraints

A major constraint is the inaccessible and flood-prone terrain with a poor road network. The villages that do not have a proper and adequate water supply, and hence are in need of a low-cost, simple yet efficient water disinfection method like SODIS are difficult to reach. Consequently it is very difficult for the POs to access these villages for conducting regular meetings and monitoring activities. Further, the average community size is small (50-100 households) in most areas and the habitation density is low. Most villages can be approached after walking for 5-6 km on mud tracks. These problems slow down the progress of SODIS promotion and monitoring, especially during the monsoon months of June-September.

Another constraint is the low awareness level in many communities of the need to have microbiologically safe drinking water. Many people are not aware of the link between contaminated drinking water and waterborne diseases like diarrhoea. They are also tradition-bound and do not easily adopt new technologies. Instead, they are content to drink raw water that was consumed by their forefathers. At the same time, the simple nature of SODIS does not convince many people about its efficacy. People are used to visualize an efficient technology as something that involves the use of sophisticated machinery, filters or chemicals and the like. In certain areas where PET bottles were purchased and supplied by the project team, people thought that these were special bottles that alone could be used for SODIS and it took a lot of effort to convince them to use normal soft drink or mineral water bottles.

A third constraint is the scarcity of NGOs that are competent and trained enough to undertake this kind of work. Most community level NGOs are like village clubs that have never undergone the experience of planning and conducting methodical work that are essential prerequisites for conducting a project like SODIS.

PET bottle availability was another constraint that we faced in the initial stages. However, as the users gradually realized that their initiative is also required to protect the health of their families, they are now collecting used PET bottles, often with the active help of the POs.

Potential for scaling up

In view of many areas in Assam not having access to safe drinking water, SODIS has a potential to be promoted in a wider area, not only in all the three districts of Barak Valley, but in the neighbouring Brahmaputra Valley as well. However, a state level government collaboration and integration as well as wider networking with competent NGOs are necessary to achieve this goal. Coupled with rainwater harvesting, SODIS could be extremely useful in



Fig. 6: Consuming SODIS treated water has improved user's health significantly

enabling the people to reutilise surface water sources in arsenic and fluoride prone areas of the state.

Lessons learnt

Before targeting any new area for SODIS promotion, it is essential to consider criteria such as the absence of water supply, poor microbiological water quality and/ or prevalence of diarrhoea, degree of community bondage and cooperation, accessibility, presence of active local NGOs- especially women's organizations - and expression of interest by village-level institutions and government officials.

PET bottle availability is a very important factor. Based on the lessons learnt we feel that these should not be supplied by the project, instead the community should be helped and encouraged by the POs to explore the reuse of available bottles such as soft drink, mineral water, edible oil, juice, etc. Involving women promoters, especially those having experience in community health work in various government programmes, can make the project more successful. All promoters, including influential persons involved in SODIS promotion, need to be SODIS users, so that they can share their own experience and consequently be more convincing.

REFERENCES & PARTNERS

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