

# SODIS - WATER QUALITY IMPROVEMENT AT HOUSEHOLD LEVEL

## A CASE EXAMPLE FROM EAST LOMBOK, INDONESIA

### SUMMARY

Contaminated water sources and the fact that the majority of the population drinks untreated water leads to high diarrhoea incidence in East Lombok. A pilot project for the introduction of SODIS raised the strong interest of local health officials. Thereafter, a larger scale dissemination project was implemented in East Lombok from April 2003 to June 2004. For the dissemination of SODIS, the local NGO's Yayasan Dian Desa (YDD) and Yayasan Masyarakat Peduli (YMP) closely collaborated with the district health department and established a structure for hygiene promotion and SODIS training at village level through the local community health centers. The project staff initially trained health officials, sanitarians, teachers and representatives from the community as SODIS trainers. They in turn reached 144 subvillages and 70 elementary schools, benefiting some 130'000 people with their messages on improvement of hygiene practices and treating their drinking water with SODIS. A significant reduction of the diarrhoea incidence of more than 70% led to a high acceptance of SODIS and to a spread of it's use beyond the project area.



### THE CONTEXT

East Lombok District is a dry area and most of the rivers only have water during rainy season. Only 12 springs are available for drinking water, most of which serve the urban population. The rural population in most villages of the project area use traditional hand dug wells to cover their main water requirement. The water supply coverage in East Lombok is 50% (mainly in urban areas), sanitation coverage is only 38%. The quality of the drinking water is very low. The analysis of raw water revealed an average E.coli contamination of 174 CFU/ 100 ml. The quality of the water however, is strongly dependent on the season.

The low quality of the drinking water contributes to the difficult health situation in Lombok. The Mortality of babies amounts to 86 per 1000 births. Diarrhoea is the third most frequent disease after respiratory and skin diseases.

Highly contaminated drinking water and the fact that the rural population of East Lombok is used to drink untreated raw water contributes to a very high diarrhoea incidence. In view of this situation, the government from the provincial and the district level, especially the health department were very supportive of the introduction and dissemination of SODIS in their area. The health development policy emphasizes preventive action rather than curative measures. Therefore the introduction of a new water treatment method to be used at household level was considered to be very much in line with the government policy.



Fig. 1: Some 130'000 people in East Lombok use SODIS for the treatment of their drinking water



## THE PROJECT

The project in East Lombok aimed at improving the health of the community through the provision of safe drinking water by the SODIS water treatment method.

To reach this objective, the local NGO's Yayasan Dian Desa (YDD) and Yayasan Masyarakat Peduli (YMP) closely collaborated with the health departments of East Lombok District. Also the education department was involved in project implementation.

The project mainly focused on establishing the structure and capacity within the government system for continuous, long-term support and supervision of the local community on the application of water treatment methods such as SODIS and improved hygiene practices. Creating awareness in the community on the importance treating the drinking water and improved hygiene practices, and initiating the corresponding changes of behaviour were the main messages of the training provided to government officials as well as the focus at grassroots level. To involve all the actors working on health, an initial workshop was conducted involving all high level officials representing the project area (heads of community health centers, heads of the Family Welfare Program of the Sub-districts, headmasters of local schools, village chiefs, heads of the Sub-district Health Departments, representative of the District Family Welfare Program, representatives of the District Planning Bureau, head of the District Women Empowerment Program, representative of the East Lombok Health Department).

Subsequently, training of trainers was provided to all those involved in health, hygiene & sanitation education, such as doctors, sanitarians, community health promoters, environmental hygiene promoters as well as teachers.

The training of trainers is of key importance to ensure sustainability, wider adoption and use of SODIS use in East Lombok District. Health promoters were trained on



Fig 2: Capacity building of health officials on SODIS training



Fig 3: Village Cadres are responsible for the supervision of the correct SODIS application

educating the community to adopt a "healthy life style" consisting of applying improved hygiene practices and drinking safe water produced by SODIS.

The dissemination of SODIS to the community in each village was channelled through the respective community health centres. The SODIS promotion teams consisted of YMP staff and the newly trained promoters from the Health Department, Community Health Centres and Department of Education. The SODIS promotion teams provided training to representatives (village cadres) from the local community. The villages cadres are responsible for the education of the community, supervision of correct SODIS application and distribution of SODIS bottles.

In each village also two schools were covered by the SODIS training activities.

The total duration of the project, that was funded by Georg Fischer AG, lasted for 20 months, from April 2003 to June 2004. During the project, various promotion and education materials were developed such as a SODIS leaflet, manual, SODIS video, SODIS comic book, promotional and educational posters.



Fig 4: Students of 70 schools in East Lombok were trained on the application of SODIS



## ACHIEVEMENTS AND FACTORS OF SUCCESS

The key factor for success of the project in East Lombok was the active involvement of the health development actors from village to district level. A structure and capacity for training and supervision on improved hygiene practices and SODIS have been developed within the government system. SODIS training activities have been adopted by the Department of Health and were integrated in the education program through the community health centers. The community health centers are essential for the extension of the SODIS promotion to further villages and schools.

During the 14 months of SODIS activities the following results could be achieved in East Lombok:

- A well-structured scheme of SODIS promoters was established in East Lombok, within the institutions responsible for promoting health to the community, i.e. the District Health Department and the Family Welfare Program.
- 10 community health centers, each with one sanitarian, one community health promoter and one environmental health promoter have the capacity to promote and educate on SODIS.
- The original goal of the project was to train the people in 100 sub villages and 20 schools. The coverage however was extended to 144 sub villages and 70 elementary schools.
- 70 teachers in 70 schools are skilled in promoting and educating students on the application of SODIS as drinking water treatment.
- 50 sub village heads and about 330 village women health cadres are active in promoting and supervising the application of SODIS in their respective community groups.
- 50 bottle supply schemes are established in the sub-villages.
- At the bottle outlets (cadres house, village clinic, sub-village head's house), SODIS information centers have been established.
- The community in 20 villages and 144 sub-villages adopted and use SODIS as a method for treating their drinking water: 24'240 households with 127'450 people have been trained on SODIS. 64.5% (15'652 households) of the households trained use SODIS regularly for the treatment of their drinking water.



Fig. 5: Consuming improved drinking water reduced the average diarrhoea incidence by 73%

- Data on the water quality revealed an average raw water contamination of 174 CFU/100ml. At the start of the dry season, the microbiological contamination of the raw water was reduced by 97.7% to an average level E.coli of 4 CFU/100ml.
- The significantly improved water quality contributed to an average **reduction of the diarrhoea incidence by 73%**! This remarkable health impact contributed to the strong acceptance of SODIS by the government institutes and the uptake of its wider dissemination in Lombok by the health authorities.

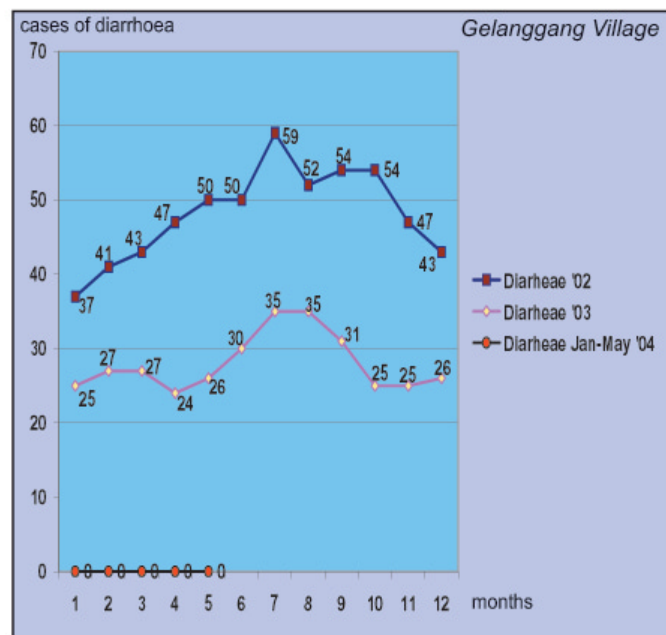


Fig. 6: Diarrhoea incidence in Gelanggang Village was impressively reduced after the introduction of SODIS

## THE CHALLENGES

### Constraints

The main constraint for the spread of SODIS use and its sustainability in East Lombok is the lack of transparent plastic bottles at village level. The project staff initially supplied purchased bottles and stressed on the importance of establishing a bottle supply system at village level. After the SODIS trainings given to the community, 5 bottles distributed to each family free of charge. Those who did not attend a training but wanted to try SODIS, could ask the village cadres for the 5 promotion bottles.

The users have to buy additional bottles required from the village cadres, who use the income from the sale of the bottles as initial capital to buy new bottles. SODIS village cadres are now responsible for the management of stored bottles, dissemination and sale of the bottles to the users and procurement of new bottles. At the end of the project most villages have established their SODIS bottle supply scheme.

Some community health centres have started to allocate small amounts to further support the development of SODIS, especially the maintenance of the bottle supply system, in their area.

In view of the impact of SODIS on the reduction of diarrhoea incidence, the Health Department is also lobbying at the District Government to allocate larger funds to support the national SODIS dissemination.

The management of the used and damaged SODIS bottles should be given attention in future, so that a pollution problem in the village can be avoided. At present, the community uses the damaged bottles for seedlings and plant pots or oil. But, if more and more bottles are imported and brought to the village, the disposal of waste should be appropriate.

### Potential for scaling up

The potential for scaling up of SODIS in East Lombok is high as the method proved to be effective in improving the health of the local people. Health officials of the Government were involved during the entire process of project implementation and the structure and capacity for further dissemination of SODIS were established within the health system.

### Lessons learnt

1. The key factor for the success of the project was the interest and engagement of the Government Institutions such as the Provincial Health Department of NTB (West Nusa Tenggara Province), the District Government, especially the East Lombok District Health Department in the promotion and dissemination of SODIS, including their support for

the project activities aiming at establishing SODIS training through the official health centers.

2. Integrating the SODIS staff into existing government structures such as the community health centers is the basis for sustainability and the spread of SODIS application throughout Lombok.
3. The availability of enough SODIS bottles at the start of the project was important, therewith the community immediately after the training could start with the application of SODIS and the momentum of interest was not lost. A well functioning bottle supply system is essential for the sustainability of SODIS.
4. Providing competition awards helped to increase the efforts of the actors (the SODIS team in the community health center) in promoting SODIS.
5. The use of participatory tools and group discussion methods during the training were effective in actively involving the community in the process of hygiene and SODIS education. Using such participatory methods contributed to the high rate of SODIS use in the community.



Fig 7: The bottle supply system is established at the local health centres

## REFERENCES & PARTNERS

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