SODIS - Water Quality Improvement at Household Level

A Case Example from Uzbekistan

Summary

Joint Development Associates (JDA) International, Inc is actively engaged in transformational community development throughout the Republic of Uzbekistan. In 2001, JDA's branch office in Kokand conducted a SODIS pilot project. This project revealed that SODIS was reliable and acceptable to the rural population of Ferghana Valley in Uzbekistan.

For the last two years, the SODIS Dissemination Project has introduced and taught SODIS in ten villages. It focused on teaching large segments of the rural population, equipping local volunteers and eventually seeing a decline of water-borne diseases. A Health Impact Survey in October 2003 revealed that project villages had significantly fewer diseases caused by water-borne pathogens than a control group of villages without SODIS.

SODIS is an extremely useful method for communities without adequate water supply systems, natural gas or electricity. It appears to be a key health intervention to address the problems in rural communities of Uzbekistan, and Central Asia.



The Context

The SODIS project was targeting communities in the Ferghana Valley of Uzbekistan. This valley is one of the most fertile areas of Central Asia and is seen also as the cultural and religious center of the Uzbek people.

Challenging water situation

Water is a critical element in the lives of Central Asia's population. People in many parts of Central Asia have no access to clean drinking water, as the infrastructure deteriorates, and sewage and industrial waste are allowed to leak into the water supply. Many water supply networks are in a poor condition, and some need to be completely replaced. This is due to a severe shortage of funds in the twelve years since independence.

Many water systems do not treat the water adequately or sometimes do not even treat it at all. In fact, none of the SODIS project villages in the Ferghana Valley have any water treatment facilities. The people use either unprotected ponds, fetch water directly from rivers and canals or use standpipes or shallow wells. Often, these wells are not concrete-lined and are located less than ten meters from an outdoor, unsealed pit latrine. This is a common source of contamination. Boiling water has been extensively taught, but the people often still drink untreated water straight from the tap, thus endangering their health.

Health intervention

The health sector has also been hit hard by the Soviet Union's collapse. The people often lack ownership over their lives, especially when it comes to basic needs, such as good health and access to clean drinking water.

SODIS creates and supports local initiative in the prevention of water-borne illnesses. The SODIS project seeks to improve people's health in low- and middle-income communities by introducing appropriate technology, supporting sustainable development practices, and empowering the rural population.

To bring about real health improvements, the introduction of new treatment methods has to go hand in hand with hygiene promotion.



Fig. 1: In many places, people get their drinking water from unprotected, open ponds

The Project

Objectives

The dissemination phase of the project in Uzbekistan, implemented from April 2002 to March 2004, was based on the lessons learnt during the preceeding pilot project. The aim of the dissemination phase was to introduce SODIS in 10 villages, create education and training material for medical personnel, health institutions, implementing agencies, schools and local SODIS staff. A broader network for dissemination was to be established and coordinated through a national workshop, regional workshops and training seminars for partner organisations and their staff.
National extension activities involving the health authorities of the Uzbek Government started in summer 2004.
The dissemination phase was supported by the SOLAQUA Foundation and EKU Foundation, both of Switzerland, with a total amount of US$ 69.000.

Strategy

JDA cooperated with the regional health authorities to select the 10 villages with the most severe water and health problems. These communities should be extensively taught how to use SODIS. Since Uzbekistan has a continental climate with hot summers and relatively cold winters, the actual SODIS season is limited to the months of May until October.

JDA trained its local SODIS staff, consisting of one coordinator, two trainers and four promoters on the technical aspects of SODIS, as well as community development practices, facilitation, PRA methods and Adult Teaching techniques. The promoters went out to the villages regularly for the introduction of SODIS to many segments of the society and to carry out regular supervision.



Fig. 2: Schools required their kids to bring their own SODIS bottle



Fig. 3: Village Health Posts get now clean drinking water by using SODIS

It prooved to be an effective way to introduce new ideas to the rural communities by first adressing schools. Children were open to try the new method. Some schools made it even mandatory for their pupils to bring bottles to the school and have them used for SODIS. Each child had its own bottle with clean drinking water!

The promoters collaborated with the local medical facilities (Village Health Posts). Its staff got trained in SODIS and two nurses in each village were selected and trained to be SODIS volunteers. These nurses are introducing SODIS while doing their daily home visits. They are key persons to give SODIS credibility in the rural communities.

It was essential to have education materials available for the various trainings. JDA created brochures for children as well as adults in the Uzbek, Russian, Qaraqalapak and Tajik language.Teaching material was developed to meet the needs of uneducated farmers as well as of high ranking staff in the Ministry of Health and Doctors.
All these resources are available as PDF files downloadable from JDA's website (www.jdainternational.org) or from the SODIS site (www.sodis.ch).

Ongoing monitoring of the project progress was essential. A Health Impact Study was done in October 2003. This study helps to understand to what extent the introduction of SODIS in rural communities helped to improve people's health.

Achievements and Factors of Success

JDA has sought the cooperation with the local health authorities. This was not always easy since a very simple, low-tech solution was introduced and the authorities were expecting state-of-the-art technology. However, credibility was gained through demonstrating the efficiency of SODIS. JDA trained health post staff and supported them in the introduction of SODIS in their communities.
In collaboration with the Education Department school directors and school nurses were trained and equipped.

Health is a complex matter to measure. Water quality is only one of many different factors influencing the health status. It is therefore important to always combine SODIS training with health and hygiene education.

SODIS acceptance at household level
The acceptance study revealed that more than half of the households in the project villages have used SODIS during the summer (54.1%), of which almost 70% have used SODIS every day.
More than 89% of the permanent SODIS users were very positive towards the new method and wanted to continue using it in the future. None of the users refused to use it again in the next year. This is a strong argument from the rural population itself regarding their confidence in SODIS.

Water quality & health improvements
The results of the a health impact study conducted during September to October 2003 show that:

- People were using SODIS beside other treatment techniques like boiling, sedimentation etc. Between 20-50% of the daily water consumption was treated using SODIS.
- SODIS is an excellent method for villages lacking adequate water supply systems, or gas or electricity supply.

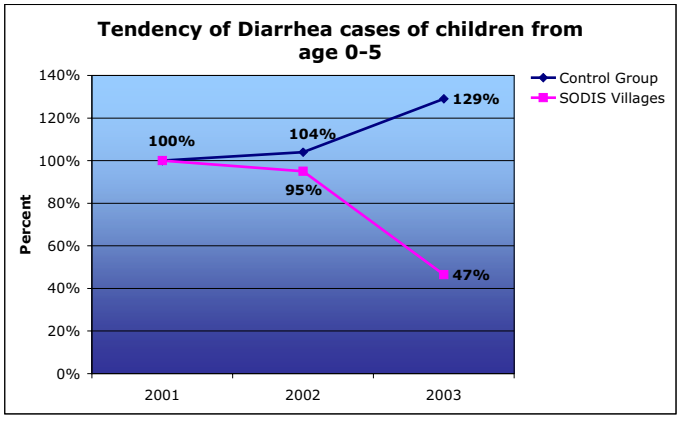


Fig. 5: Diarrhoeal diseases among children of age 0-5 were reduced by 53.5%



Fig. 4: SODIS appears to be an ideal method for the rural population in Uzbekistan

- SODIS users reported health benefits for themselves as well as for their families.
- Project villages were having significantly fewer diseases caused by water-borne pathogens than villages without SODIS in their immediate vicinity. They have reported a **reduction of diarrhoeal diseases of more than 60%** within two years.
- Among children of age 0-5, SODIS communities reported a **decrease of diarrhoeal illnesses of 53.5%** (since 2001) The control group of non-SODIS villages however, reported an increase of diarrhoeal diseases of 28.4% in average.

This study is a first step to analyse the impact of SODIS projects on users' health in the former Soviet Central Asia. Unlike administrative health data, the data collected for this study provides a unique opportunity to link input in water treatment to improvement of the health status of users in the communities.

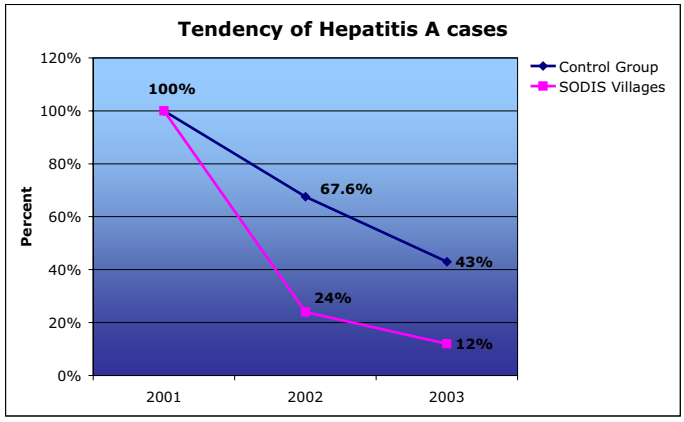


Fig. 6: SODIS also led to a reduction of Hepatitis A cases

The Challenges

SODIS inevitably faces a number of challenges from the social, political, institutional, technical and financial perspectives. The future of SODIS dissemination in Uzbekistan and beyond depends on how the challenges can be addressed and overcome by the joint actions of JDA, the Ministry of Health of Uzbekistan and other international or national NGOs.

The most difficult issue was the strict control exercised by the authorities. People are hesitant to accept new ideas if they were not endorsed officially by the authorities. This made it sometimes very challenging to work in the communities. We also had to be quite creative to overcome the passive attitude of the population. This is a left-over from the socialist times, where self-initiative and creativity was not encouraged.

However, in May 2004, JDA and the Ministry of Health of Uzbekistan signed a contract to introduce SODIS in five additional provinces. This will target about 4 million people. JDA will work through the existing health structure and we aim at establishing a model how SODIS can be taught in every community throughout the country.

The following are some of the major lessons JDA has learned about SODIS to date:

General observations

- Villages with the worst water supply situation were most receptive, villages therefore have to be selected carefully.
- SODIS is a low-tech method but still needs careful introduction and training.
- People tend to accept fancy and high-tech methods quicker, even if they quit working soon after.

Project management

- The communities must organize themselves if they are to meet collective needs. Local responsibility is desirable in design, execution and monitoring of any water supply project.
- Promote group "ownership" of SODIS projects .
- Provide continuous training and upgrading of involved staff and volunteers.

Education and training

- Trainers/ promoters have to fully understand the technical and microbiological aspects of SODIS.
- There is a need for well-understood "hardware" (SODIS method) in combination with "software" (Hygiene Education)
- Teach the few but important "rules" of the SODIS process well and repeatedly.
- Use different teaching and information techniques.
- Children in the villages accepted SODIS very well. They were more than willing to do something about their own health, especially since it was fun to handle the bottles.
- If teachers got motivated, they were great encouragers and promoted SODIS in their schools. Schools were one of the best entry points into villages.
- Adults need more information and materials before they fully accept the new method.
- It was important to include the local medical staff into the dissemination process. They are the local experts, usually got very excited about SODIS and became promoters themselves.

Networking with partners

- Actively involve existing policy makers, health structures and authorities in the promotion process, such as the various ministries, NGOs, and others.

SODIS has the potential to improve the health of many people in Central Asia. It is a simple, cost-effective method that saves natural resources and could easily be applied in every household. It puts the responsibility for the people's health back into their own hands.



Fig. 7: An elderly Uzbek couple drinking SODIS water

References & Partners

JDA International, Inc., Kokand Branch
Beat Grimm, Regional Project Manager
75, G. G'ulom Street, Kokand 713028, Rep. of Uzbekistan
ph/fax [redacted]
email: jda_kokand@jdapost.com
[redacted]
www.jdainternational.org

EAWAG/ SANDEC, M. Wegelin, R. Meierhofer
P.O.Box 611, 8600 Duebendorf, Switzerland
http://www.sodis.ch