Training Manual for SODIS Promotion

SODIS
Solar Water Disinfection

Foreword

At least one third of the population in developing countries has no access to safe drinking water. The lack of adequate water supply and sanitation facilities cause a serious health hazard and expose many to the risk of water-borne diseases. Each day, about 6000 children die of dehydration due to diarrhoea. The difficult health situation has been improved in many areas after the introduction of Solar Water Disinfection (SODIS) as water treatment method at household level.

Today, SODIS is used in more than 20 countries by more than 2 Million people. Different health impact assessments in those areas have shown that SODIS, combined with improved hygiene behaviour, can reduce diarrhoea incidence by 20 to 70%. A variety of experiences have been made with different approaches during the implementation of SODIS Projects. This training manual contains a description of important factors that contributed to the success of previous SODIS projects - the acceptance and sustainable application of the method. The information presented in the manual thus should support organisations working in the field of community health education for the successful planning and implementation of SODIS activities.

The idea for writing a training manual was conceived during our collaboration with Lions Clubs. Since 2003 Lions Clubs in Switzerland are engaged with supporting the implementation of SODIS Projects. We sincerely would like to thank the Lions for their engagement and enthusiasm for SODIS! A special thank goes to the Lions Club Zürich-Dolder for supporting the print of this manual.

Dübendorf, 9.2.2006

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Training Manual for SODIS Promotion

SANDEC Report No.13/06 , 2006

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1. Introduction

This training manual for SODIS promotion intends to give a helping hand to organizations planning to promote and disseminate Solar Water Disinfection in areas where people to not have access to safe drinking water.
The training manual lists up important issues to be considered during project inception, planning and implementation. In addition, the manual describes a number of training tools that have been used effectively in the process of creating awareness on the importance of disinfecting drinking water and training people in the application of SODIS.

The information below is based on experiences that have been gathered during a decade of implementing SODIS projects in more than 20 countries in Asia, Africa and Latin America.

The process of implementing a SODIS project consists of the following steps:

1. Needs Assessment -> Project needed? Yes or No
2. Formulation of a SODIS Project Document by a local Organisation
3. Review of the Project Document in collaboration with a SODIS reference centre
4. Informing all concerned stakeholders (local authorities)
5. Development of training and education material in local design and local language

   (different materials needed for Trainers, Promoters and Users)
6. Training of staff of the NGO (supervisors, technical staff, health staff)
7. Training of SODIS Promoters (community workers)
8. Training of users
9. Promotion activities through local media (Articles in newpapers, TV spots, Radio Programmes)
10. Evaluation & Monitoring of field activities (Nr. of SODIS users, health impact)
11. Networking activities (contact with other NGO's, Government authorities)

Steps required for the inception, planning and implementation of a SODIS Project

2. Needs assessment; Selection of communities

The needs assessment is the first step of a SODIS project. An assessment provides the critical information on the environmental conditions in a specific area and gives insight into current behaviour practices of the local population. The assessment provides information about the characteristics of the population, health status of the community, diarrhoea incidence, the water sources, water consumption and treatment practices, healthy habits and unhygienic behaviours.
The needs assessment does provide the basic information for the decision whether a SODIS project makes sense and should be implemented or not. A SODIS project should not be implemented if:

- people consume clean drinking water
- people do not suffer from diarrhoeal diseases
- people successfully use another method for the disinfection of drinking water
- climatic conditions do not favour the application of SODIS
- PET bottles are not available and a supply scheme cannot be established
- the water to be used is chemically contaminated (salty, pesticides, arsenic, fluoride, etc.)

Different tools can be used to generate information:

- Data from the water supply and health authorities,
- General community gatherings
- Meetings of specific groups such as women groups, youth groups etc.
- Questioning of key informants
- Focal group discussions
- SARAR / PHAST Methods

To ask people about their personal hygienic behaviours or health status in front of a group is not likely to yield a valid result. The pocket voting tool can be used in such situations to get a rough overview on specific questions such as hygienic behaviour, water treatment practices or health status.

➲ **Pocket Voting Tool (see Annex 1, page 22)**

The needs assessment looks into the following aspects:

1) Need for water treatment

Is the drinking water in the proposed project area really microbiologically polluted?

Do people mostly drink this polluted raw water without prior treatment, e.g. boiling? Is there a high risk for the recontamination of drinking water through inappropriate water handling practices?

Could side problems (e.g. scarcity of energy, water transport and storage problems) enhance the interest in SODIS?

2) Health status of the local population

Do people have a significant incidence of water borne diseases? What is the diarrhoea morbidity and mortality of children below 5 years? What is the general diarrhoea incidence in the community?

Box 1: What causes diarrhoea?

The consumption of microbiologically contaminated drinking water is an important cause for diarrhoea. Communities with a habit of consuming untreated water directly from the source, polluted rivers and ponds are therefore especially exposed to a health risk.

The diarrhoea causing pathogens are not only transmitted through contaminated water but they follow different pathways. They are transmitted through dirty fingers, contaminated foods, flies etc. To improve the overall health status of the local community, it is therefore not only important to provide clean drinking water, but also to enhance awareness and practice of hygienic behaviours and healthy environments such as washing hands with soap or safe disposal of faeces.

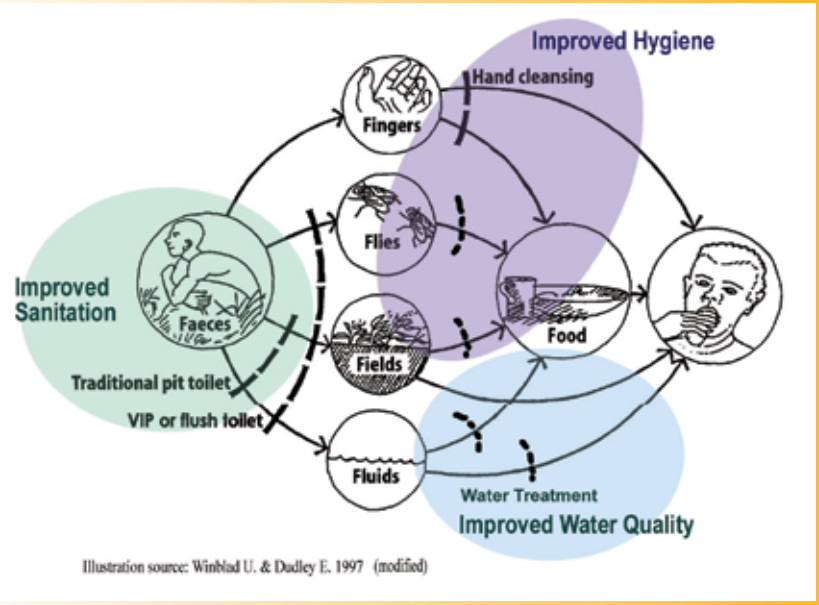
Evaluations of many development projects in the field of water, sanitation and hygiene have revealed that the following interventions contribute to reducing diarrhoea incidence:

- Improved water supply: 25% (More water is available for hygiene practice)
- Improved sanitation: 32% (Faeces are disposed of safely;

transmission through flies is reduced)

- Handwashing with soap up to: 45% (Hands are clean)
- Improved water quality: 39% (Transmission via consumption of contaminated water is reduced)

(Fewtrell L. et al: Water, sanitation and hygiene interventions to reduce diarrhoea in less developed countries: a systematic review and meta-analysis. Lancet Infectious Diseases, 2005, 5(1): 42-52)



3) Climatic conditions

Does the climate (seasonal varation of sunshine, temperature and rainfall) favour the application of SODIS?

4) Bottle availability

Are plastic bottles available in the project area or will a bottle supply scheme be developed during project implementation? Can the target population afford to buy an adequate number of plastic bottles?

Box 2: Bottles

The availability of bottles can be a constraint for the application of SODIS. The sustainable application of SODIS is only possible if the local population has an easy access to the bottles.

PET-bottles have been examined carefully and the reuse of such bottles does not pose any health risk. It has been shown that plasticizers from PET bottles are leaking only in very low concentrations into the water (for more information check www.sodis.ch).

If no PET-bottles are available, also glass bottles might be used instead. The precondition for using glass bottles is, that the glass bottles have a cap to close the bottle.
Users however prefer to do SODIS with PET-bottles because they are easier for handling: PET bottles are less heavy to carry around and they do not break easily.

In certain areas with a limited number of PET-bottles available, a bottle supply system has been established. In Lombok for example the health centres buy empty PET-bottles from the manufacturer and sell them to the SODIS users. It needs quite some effort and time until a well functioning bottle supply system is established. Also the recollection of damaged and old SODIS bottles should be organized.

Where to place bottles?

Iron sheets as bottle support do slightly enhance the SODIS efficiency, but they are not a precondition for the application of the water treatment method. Bottles can be placed onto any place that is well exposed to the sun. We do recommend however, not to have them laying around on the floor, but to designate a special place for the SODIS application which adds more value to the process and protects the bottles from playing children and animals. A good idea is to place the bottles on the roof or to construct a wooden rack to expose the bottles. Make sure that the bottles are placed on a solid surface (it can also be wood); this reduces the cooling down effect through wind.

5) Target population
What is the relationship between the intermediary institutions and the target population? Do the end users have a felt need for clean water? Is the ownership of the projects with the target population/ end users? Is the project likely to be sustainable? What indicators are available?

Box 3: The role of promotion at grass roots level

Sustainable SODIS practice cannot be established at field level with an isolated single information event! Very often the knowledge on the various transmission routes of pathogens causing diarrhoea and the awareness on the importance of treating water before consumption is missing and has to be established before the know-how on water treatment methods can be transmitted. To establish such awareness and to achieve the corresponding behaviour change is a slow and demanding process which involves a long and multi-facetted contact with the concerned population and experience in the application of appropriate community health education tools. Therefore it is important to identify an Organisation

with the corresponding knowhow and capacity to manage and implement the project.

The training effort is more successful if a variety of different education tools is applied such as lessons during group or community gatherings, house-to-house visits, theaters, puppet plays, pamphlets and posters, information dissemination through mass media (Radio, TV) as well as Information corners and SODIS demonstrations.

The socio-psychological evaluation of the SODIS dissemination process in Bolivia has shown that the promoter plays a key role for the trust into the messages provided and for the uptake of the corresponding practice. It is of high importance that the promoter has established a relation of trust with the local population. The basis for this relation of trust is that he speaks the same language and has the same cultural background!

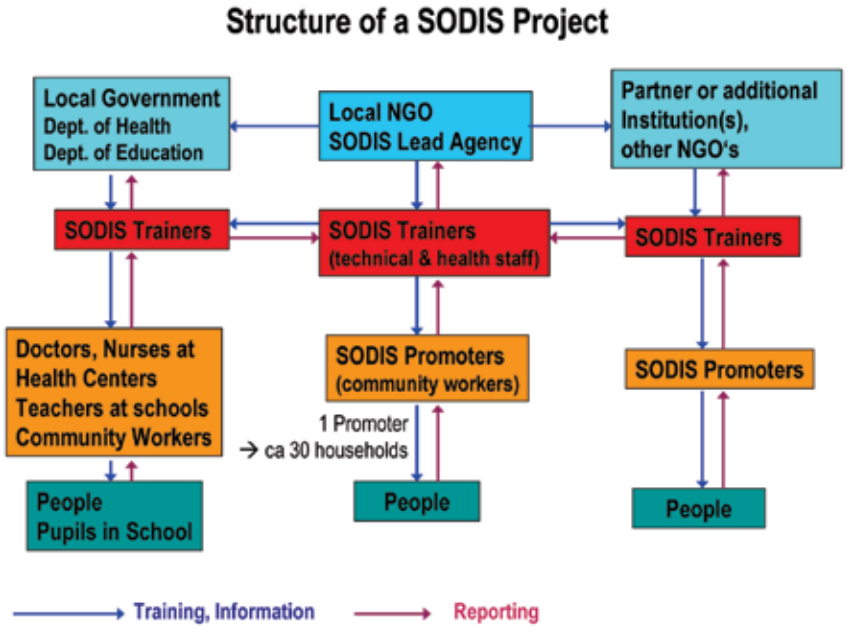
6) Intermediary Institutions

Reputation and experience of the local project partner organisation in the project area, ties to the target population, involvement of other institutions (e.g. local government, health posts, laboratories, schools, universities and cultural, religious, political leaders) in the project, impact of the proposed project, existing network for the future scale-up of SODIS promotion are important factors for the success of the project.

3. Structure for project implementation

It is important that the implementing organisation has established experience in community health and hygiene education. Several tools have been developed for the participatory training of hygienic practices (SARAR/ PHAST). These tools have proven to be effective and they are best applied through the hand of organisations with respective experience.
The training tools provided in this booklet are taken from the PHAST Training Guide. However, we present here only selected steps of a participatory training and education approach. We recommend downloading the PHAST Training Guide to get inside into further tools presented there:
PHAST. Step-by-step Guide: A participatory approach for the control of diarrhoeal diseases. WHO/EOS/98.3
The PHAST manual can be downloaded from:
http://www.who.int/water_sanitation_health/hygiene/envsan/phastep/en/

As outlined in Box 3, an intensive community education process is required to create awareness and establish behaviour change on hygienic practices including the treatment of drinking water.



4. Technical Staff and SODIS Trainers

4.1. Who are the SODIS trainers?

SODIS trainers are the technical and health staff of the implementing organisation, being responsible for the training of the SODIS promoters and the supervision of the implementation process. SODIS trainers also provide training on hygiene promotion and SODIS to other NGO's and relevant Government Organisations. SODIS trainers are also responsible for data collection, monitoring and reporting to the project leader. It is important that the technical staff is well experienced in project management and community health education.

People that may be invited to the Training of Trainers besides of SODIS trainers are: Village Heads, influential and highly educated people in the community (teachers, doctors etc), community leaders as well as leaders of community based organisations (CBOs, Women Groups).

4.2. Training Curriculum

The knowledge on theory and practice of water treatment and hygiene education is transmitted during a workshop of 1 or 2 days duration. Conducting a 2 days workshop has the advantage that a water test on SODIS treated water of bottles exposed during the first training day can

be conducted on the evening of the first day and results can be presented on the next day (the incubation of samples takes 18 hours).
The participants receive the technical information about SODIS as well as other methods for water treatment and the methodology for the participatory awareness building process on hygiene.

Example: 1 to 2 days - Training Curriculum for SODIS Trainers

Prepare Materials for SODIS Demonstration

- Expose bottles to the sun
- Conduct water quality test of raw water
- Conduct water quality test of SODIS water that had been exposed during the previous day

=> have the water tests ready for the session on Solar Water Disinfection or the SODIS Apéro

General Introduction

- General health and water quality situation in the project area
- Why is a SODIS project needed

Introduction into Solar Water Disinfection

- Technical information on SODIS based on the SODIS Manual
- Display of different bottles that can or cannot be used for SODIS
- Exposure time; Climatic conditions
- Turbidity: Demonstration on how to check turbidity and how to remove turbidity
- Where to expose the bottles; possibility of bottle stands
- Storage of treated water

Different Methods for water treatment at Household level

- Theoretical introduction into: Boiling of water, chlorination, filtration, sedimentation and flocculation
- Tasting of water that has been prepared using each method (including SODIS)
- Comparison of limitations and advantages of each method

Hygiene Education

- Theoretical introduction into the importance of hygiene practice
- What kind of water sources are used
- How to be a good facilitator
- Transmission Routes Tool
- Blocking the Routes Tool

Practical Application

- Role play in groups; practise on how to provide SODIS training and hygiene education to others

Discussion of SODIS sustainability with focus on the availability of PET bottles

Training on supervision and Monitoring

- Tools for monitoring: Questionnaire, Pocket Voting Tool, Community gatherings, observation
- What kind of indicators should be monitored: Application of SODIS Y/N, Correct application, Diarrhoea incidence, condition/ Nr. of bottles.
  The first set of data on the health status should be collected before the projects starts
- Frequency of supervision and monitoring

Presentation of the results of the microbiological water quality analysis and toast with SODIS treated water

4.3. Frequency of supervision

- The trainer visits the promoters once per week during the first month after the training, later once per month for exchange of experiences.

- Every 3 months the group of SODIS trainers meet with the project team (project leader) for review of progress, exchange of experiences and discussion.

5. SODIS Promoters

5.1. Who are the promoters?

SODIS promoters are representatives from the local community, health workers, nurses, teachers who are responsible for the training of the local people. SODIS promoters work under the close supervision of the SODIS trainers. It is of great importance that respected local people, leaders and influential people from the community are chosen as SODIS promoters. These people have a great influence on the level of acceptance of project activities in the community and on the resulting level of behaviour change. Promoters themselves use SODIS for the treatment of their drinking water.

Promoters are identified using a predefined list of criteria for the selection of promoters (see Box on Requirements for Promoters). The whole project team should be involved in the selection of promoters. Education and promotion experiences are a good prerequisite for a SODIS promotes. A good reserve of promoters should be trained (train 5 promoters if 3 promoters are needed).

Depending on the housing density of the population a high number of community workers/ SODIS promoters is required to provide the necessary training to the local population. A higher number of promoters is needed in mountainous regions where distances between households can be long, while more people can be reached in the same time by one promoter in the dense housing structures of an urban slum.
As households have to be visited weekly during the first month after the training and once each month in the following year, we suggest that one promoter is responsible for the education and visit of approximately 10 to 30 households.

5.2. Training Curriculum

Example: Training Curriculum for SODIS Promoters	
1 hour	Introduction of participants
1- 1.5 hours	Transmission Routes Tool
30 Min – 1 hour	Blocking the Routes Tool
1 hour	Demonstration of different water treatment methods & Discussion
1 hour	Practical Demonstration of SODIS
2 hours	Role Game

5.3. How many trainings are required?

Provide a first training to the promoters and a second refresher training, shortly before the community training in the villages starts. During the first training in the community, the promoters should be accompanied by the SODIS trainer.

Every month the promoters meet with the SODIS trainer for exchange of experience and discussion.

5.4. Training Tools and Methods

The instruments used in the training of SODIS promoters are simple and practical so that they can replicate them during their work with the local communities. In a first step current behaviour patterns leading to high diarrhoea incidence in the community are analysed and possible solutions for the prevention are discussed. Water treatment practices such as SODIS are part of the solutions for blocking the transmission routes. Participatory training tools as presented in the PHAST Training Guide are well suited to create awareness on the importance of hygiene, sanitation and clean water and initiate corresponding behaviours:

➲ **1. Transmissions Routes Tool (see Annex 3, page 26)**

➲ **2. Blocking the Routes Tool (see Annex 4, page 29)**

In a second step the topic of clean drinking water is further elaborated. Different water treatment methods, including Solar Water Disinfection methods are presented and their advantages and limitations are discussed:

• **3. Demonstration of different water treatment methods**

Drinking water is prepared using the different treatment methods and the water prepared through each method is tasted:
- boiling
- chlorination
- filtration (using commercial ceramic filters if available locally)
- flocculation and sedimentation using Alum / Moringa olifeira seed
- SODIS

The group discusses advantages and disadvantages of each method. Aspects to be discussed are:
- taste of the treated water

Requirements for Promoters:

- The promoters need to have a clear understanding of the correct application of SODIS as well as other water treatment methods.
- The promoters need to be aware about the role of hygienic behaviour, sanitation and water treatment in the prevention of diarrhoea.
- The promoters use SODIS for the preparation of their own drinking water.
- The promoters need to be skilled in the use of community education tools.
- The promoters should be able to talk and explain well in front of other people, but also have to capacity to listen when other speak.
- The promoters have a personality that creates trust.
- The promoters originate from the same cultural background as the local population and speak their language.
- The promoters have to be carefully supervised during their work in the communities to evaluate their motivation and capability.
- The promoters are aware that behaviour changes in the community take much time and require careful backstopping.

- efficiency of method,
- availability of resources to practice the method
- effort involved for the preparation of the water,
- cost of the method

➲ **4. Practical Demonstration of SODIS (see Annex 5, page 32)**

- **5. Role Play**

The role play forms an important part of the training and is intended to establish confidence in the promoters to use the tools and transmit their knowledge on SODIS to the local community. The trainees are split into groups of about 10 people. One by one, each person gets the task to explain and demonstrate SODIS to the rest of the group. An important point of the role play is that the “Promoter” is confronted with the questions on SODIS and it’s application from the rest of the group, which he/she then will have to answer. Questions that cannot be answered during the role play are collected and discussed in the plenum.

In a second step, the “Promoters” conduct their first facilitation exercise in a nearby community. The first trainings to the local community are conducted under the supervision of the SODIS Trainer.

6. Training of users

6.1. First steps to approach the members of the community:

The activities in the community are initiated by informing, sensitizing and motivating the authorities and the community about the objectives of the project and the importance of water treatment and hygiene behaviour.

The first contacts in the community are made with local leaders, influential people, medical personnel (health posts) and teachers. These people should be involved in the SODIS promotion activities.

6.2. Providing training to the community

Once the authorities committed their support and active participation in the promotion process, the community can be approached through:

1. Meetings with different groups
which exist in the community such as mothers groups, youth groups, agricultural group, etc.

2. General community gatherings
The size of the group should not exceed 30 people. If the community is of large size, the big gathering has to be split into smaller groups and the training is provided to the smaller group.

During the group gatherings the awareness building process is initiated through using the participatory problem analysis and solution finding methods such as:

- Transmission Routes Tool
- Blocking the Routes Tool
- Discussion of different water treatment methods (boiling, chlorination, SODIS), their Advantages and Limitations
- Practical demonstration of SODIS

During the demonstration of SODIS the conditions have to be as realistic as possible: use the type of bottles that is available

locally, correct exposition and duration of exposition, wash the bottles before the first application and watch the hygiene of the hands. These details are very important for the correct application of the method and can guarantee the correct transfer of awareness to the community.

Explain the important details of the application:
- Which bottles can be used for SODIS
- Duration of exposure (6 hours in full sun)
- Turbid water has to be filtrated before SODIS can be used
- During rainy days SODIS does not work (use another water treatment method or consume stored SODIS water)

- If possible: demonstration of water quality tests of the untreated raw water and after the water has been treated with SODIS.

After the formal training, each household should receive 2-4 plastic bottles free of charge from the project. This is an input after the training and allows the trainee to immediately start with the application of SODIS and to use the immediate impact of the training provided. Additional bottles required by the household should be organized or bought by the users themselves, so that the sustainability of bottle supply and replacement of damaged bottles is established in the project.

The trainings of the community are complemented with meetings with institutions working in the area, such as for example the church, health posts, schools, other NGOs working in the community

3. Household Visits

The most important tool to reach the community are household visits. It is important that an individual contact and relation of trust is established between the promoter and the user. During the first year of application promoters visit users at least once per month to discuss eventual questions, check the correct application of SODIS and discuss possible hygiene solutions in the household.

6.3. General Promotion and Education Materials

The uptake of hygienic behaviour and water treatment practices in the community is enhanced if the training efforts of the promoters are complemented with messages provided through the mass media.

- Television
- Radio
- Publications in newpapers
- Posters, Flyers, Calenders
- Drawings
- Dances, Songs, Theaters, Puppet plays

A **high visibility of SODIS in the community** supports the dissemination and acceptance of the method. Information corners with posters and SODIS demonstration stands, preferably at health centers, therefore should be installed in the community.

7. Supervision and Monitoring

Awareness building and behaviour change is a difficult and long term process. In order to achieve the desired behaviour change a very frequent backstopping process is required. The first group training has to be followed by regular visits of the SODIS promoters to group gatherings as well as individual household visits. During these visits the correct application of the water treatment method is observed, open questions discussed and hygiene practices are monitored.

During the first month after the training, the SODIS users are visited once each week. Once the correct application of the method has been established, the users are visited once each month during the first year of practice.

One SODIS promoter should be available for the support and monitoring of about 30 SODIS users.

- Tools for monitoring: Questionnaire, Pocket Voting Tool, Community gatherings, Observation

- What kind of indicators should be monitored:
  - Application of SODIS Y/N,
  - Nr. of users
  - Correct application,
  - Diarrhoea incidence,
  - condition/ Nr. of bottles used.

  The first set of data on the health status should be collected before the projects starts

- Questionnaire for assessing the health impact in projects can be downloaded from:
  http://www.sodis.ch/Text2002/T-Projects.htm

ANNEX 1

8. Pocket voting tool

The pocket voting is a tool that can be used to collect information on the individual sanitation and hygiene practices in the community

Materials needed:

- a pocket chart
- drawings showing behaviours / activities you would like to get information about

  (f.e. places for defaecation, hygienic behaviours, water treatment practices)
- voting materials (f.e. slips of paper, stones, seed)

What to do:

1. Show the group the pocket chart and explain what a pocket chart is. Explain how it can be used to collect information on what people actually are doing in the community.
2. Set up the chart with the behaviours / activities you would like to get information about.
3. Once the chart is set up, show how the information is collected by identifying one's own position in the column on the left side and the options for behaviour along the top, and then place a token to indicate the behaviour practiced. The left-hand side column consists of pictures of different types of individuals: a women, a man, a boy, a girl. In placing your token, you identify what type of individual you are, as well as the option you use.
4. The pocket chart must be set up in such a way that participants can place their tokens without being seen by others.
5. Ask the participants to place their tokens one by one.
6. Once all participants have placed their tokens, ask a volunteer to count the tokens and display the totals.

Participants should discuss the meaning of the totals. For example:

- Which options are the most/ least commonly used? Why?

- What factors influence people's choices?

- What other options do people favour? Why?
- How do/ would these choices affect the health or well being of the community members?

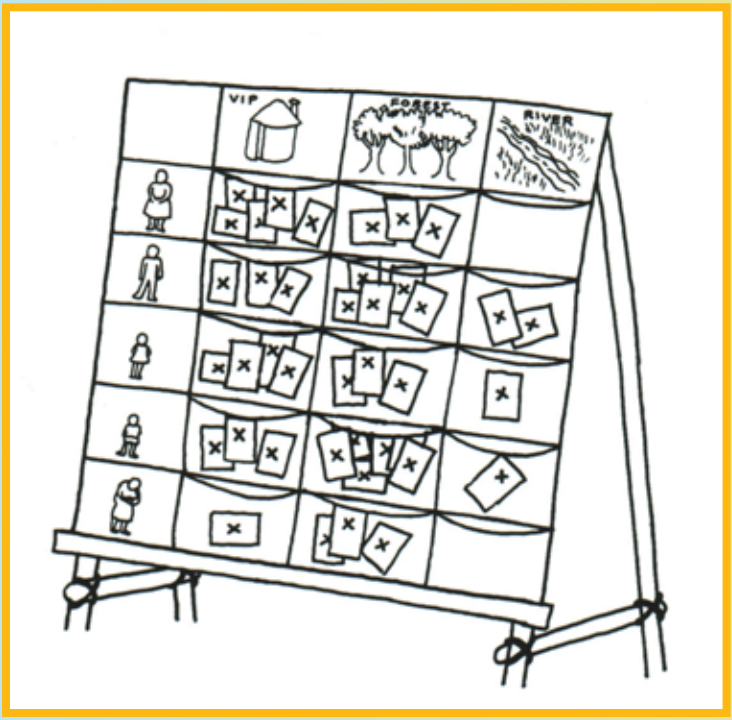
Notes:

- When this tool is used the fist time, confusion can be avoided if one drawing only at one time is placed in the left-hand side column. Participants can place their tokens to identify their options. After this, the next drawing can be placed below the first one in the left-hand side column. Continue in this way until all the drawings in the left-hand side column are in place.
- Stress the need for people to be honest when placing their tokens.
- This activity can also be used to collect more information by asking more than one question and using more then one type, colour or shape of token. If the group, for example, wanted to know which options were used occasionally as well as which were used frequently, each participant could use one type of token to answer the first question and a different type of token to answer the second question.
- Make sure that the set of drawings reflects all the options present in the community. Be prepared to make and include additional drawings to represent additional options mentioned or suggested by the group during the activity.
- Be prepared with ways to keep the rest of the group busy while members are taking turns to place their tokens, since this process can be quite long. Or else, do the pocket chart activitiy during a break.
- The tokens should be counted in front of the group so that everyone can see that the counting is done accurately. The tokens should be taped onto sheets of paper or directly onto the pocket chart in

order to give immediate visual feedback.

- The pocket chart is a good evaluation tool. Information collected at this early stage can be compared with information collected in the same way, later in the programme. By comparing the two sets of information, the group can see whether changes in behaviour are taking place.

Source: PHAST. Step-by-step Guide: A participatory approach for the control of diarrhoeal diseases. WHO/EOS/98.3



ANNEX 2

9. How to be a facilitator

The most important thing is to remember that a facilitator is not a teacher. When doing a participatory assessment, all members of a group are equally important. The facilitator is not a leader who directs the group to where he thinks it should go. Instead he helps the group to understand their own situation and to make informed decisions about how to improve that situation.

His/ Her role is to facilitate the process; help to:

- identify issues of importance to the group
- express their problems
- analyse their problems
- identify possible solutions

The facilitator should not:

- direct the group
- give information instead of letting the group find it for itself
- advise or suggest what the group should do
- make assumptions about what is the right response
- correct the group

Before approachig the community, the practice of being a facilitator carefully should be practiced under the guidance of an experienced trainer.

Source: PHAST. Step-by-step Guide: A participatory approach for the control of diarrhoeal diseases. WHO/EOS/98.3

ANNEX 3

10. Transmission routes tool

The purpose of the Transmission Routes Game is to discover and analyse how diarrhoeal disease can be spread through the environment.

Materials:

- About 10 drawings of transmission routes. Draw situations where people could unintentionally come into contact with human faeces ad the germs they carry. Think carefully about the conditions in the community and adjust your drawings to the local situation. Also include situations where people to not come into contact with human faeces. Including such drawings helps people to think deeply about transmission routes.
- large sheets of paper
- coloured pens or marker pens
- sticky tape

What to do:

1. Ask the participants to form groups of 5 to 8 people
2. Give each group a set of materials and the following task:

   "One drawing shows a person defecating openly (use local term)/ an inadequate latrine (choose whichever is appropriate for the community). Another shows a persons mouth. (Show the drawings)"

   "Please use the rest of the drawings to try and create a diagram showing the different ways in which faecal matter (use appropriate local description) might come in contact with the person. You can draw arrows between the different drawings to show the ways that this might happen.
3. When the groups have made their diagrams, ask each group to show and explain its diagram to the other groups. Let it respond

to any questions raised by the other groups.

4. Discuss similarities and differences between the various diagrams.

5. Now facilitate a discussion to help the groups use this new knowledge to examine it's own situation. Discuss and identify:

   - the transmission routes in the community

   - the problem areas and hygiene behaviours that are putting people at risk of infection

   If possible ask a participant to record the problem areas in the group's community as they are discussed.

Notes:

- Some participants may at first be shocked at the content of this activity. There may be disbelief that faeces can be transmitted to the mouth. The best way to deal with this situation is to get the group working together as quickly as possible. Those participants who are more receptive than others will help the disbelievers to become more involved.
- Do not be concerned if each group does not identify all the faecal-oral routes or if it's diagrams do not look like the "F-diagram". It is enough if it has identified some of the routes. The routes must nevertheless be clearly defined in order to be useful in future activities. Other group members may identify additional, different routes. These can be discussed and a more complete drawing be formed.
- Do not promt of direct the groups when they are trying to create their diagrams.
- If the group as whole does not manage to clearly identify the transmission routes, try to find out why. It may be useful to hold a group discussion to evaluate the activity, which can be tried a second time.

Source: PHAST. Step-by-step Guide: A participatory approach for the control of diarrhoeal diseases. WHO/EOS/98.3

Possible Drawings:

- a persons mouth or face
- a hand
- food crops or a vegetable garden
- flies, cockroaches or other insects
- open defecation (if relevant)
- animals in water sources
- people washing in water sources
- plates of uncovered food
- someone collecting water
- uncovered water collection containers
- household dishes, cups, eating utensils
- a dirty latrine/ toilet
- a person using their hand to drink water from a container
- someone preparing food
- dogs/ pigs eating faeces
- a women cleaning a baby's bottom

ANNEX 4

11. Blocking the routes tool

The purpose of the blocking the routes tool is to identify the actions that can be taken to block the disease transmission routes.

Materials:

- Make about 15 drawings of different ways to stop or block the transmission routes of disease. Choose only those relevant to the situation of the community or ethnic group. Cut the pictures in an oval shape. This helps to distinguish them from the Transmission Routes drawings.
- Diagrams prepared during the Transmission Routes Tool Session
- paper
- coloured pens or marker pens
- sticky tape

What to do:

1. Ask participants to continue working in the same small groups as during the Transmission Routes Tool Session
2. Give the groups the task:

   "Now that we know the ways in which faeces (use appropriate local word) can spread, we need to think about what can be done to stop this from happening. Each group should take a set of drawings and agree as a group where to put them on the diagram that has been prepared during the Transmission Routes Tool Session to stop or block the different routes."
3. After 30 minutes ask each small group to present its diagrams which now includes the blocks or barriers. Let each group respond to any questions asked by other participants.

Notes:

- Stress that this activity is a continuation of and builds on the transmission routes diagrams produced in the previous activity. The groups may want to change or add to some of the routes that they drew before, since they may have discussed among these routes themselves and gained additional knowledge in the meantime. These changes are productive. Ensure they are discussed.
- There is not one right answer as to which barrier should be put on which transmission route. The minimum requirement is that the group has tried to block all the routes it has identified.
- It is useful to have blank paper and pens so that the group can create its own blocks if the existing drawings do not cover all situations.
- It would be a good idea to put the diagrams up on the wall of the community center or other meeting place.

Source: PHAST. Step-by-step Guide: A participatory approach for the control of diarrhoeal diseases. WHO/EOS/98.3

Drawings:

- Covered food
- a fenced water source
- animals in a fenced pen
- a person burrying rubbish
- a person collecting children's faeces from the yard
- storing water in covered containers
- washing hands with soap
- boiling water
- cooking food
- solar exposure of water in bottles
- dishes on a table or drying rack
- storage of water in closed bottles
- a clean latrine

ANNEX 5

12. Practical Demonstration of Solar Water Disinfection (SODIS)

The purpose of the introduction of SODIS is to establish user's know-how of the proper application of the method.

Materials:

- PET-bottles of different sizes, shapes, conditions and colours.
- Possible filter materials
- Possible bottle supports
- If available water quality testing tool kit
- Turbid Water
- SODIS Logo or Newpaper for Turbidity Test

What to do?

1. SODIS: Explain the effect of Solar Water Disinfection
Use practical examples of the effect of sunlight and UV-A radiation (getting sun burnt). More information o the technical aspects of SODIS is presented in the SODIS Manual on:
http://www.sodis.ch/Text202/T-EducationMaterials.htm

2. Bottles:
Show the different types of bottles that can be used for SODIS and examples for bottles that cannot be used:

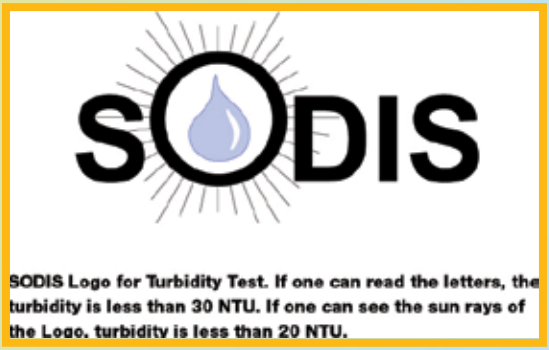
Good bottles: transparent PET plastic bottles of a **volume up to 3 litres**. (Large bottles cannot be used because the UV-A radiation gets reduced after a water depth of 10 cm)

If no PET-bottles are available, also glass bottles can be used if they have a lid that can be closed.

Bottles that cannot be used for SODIS: Coloured bottles (blue, green, brown etc), damaged bottles, heavily scratched bottles, PVC bottles

3. Turbidity:
Explain that very turbid water cannot be used for SODIS because the turbidity shields pathogens in the water from the sunlight.

Demontrate a simple test that can be performed to assess the turbidity of the water: Place the open bottle upright onto the SODIS Logo or the headline of a newspaper. Look through the mouth of the bottle through the bottles toward the Logo or the newspaper. The water is clear enough for the SODIS application if you still can read the headline of the newspaper.



SODIS Logo for Turbidity Test. If one can read the letters, the turbidity is less than 30 NTU. If one can see the sun rays of the Logo, turbidity is less than 20 NTU.

4. Methods to remove turbidity:
Demonstrate simple methods to remove turbidity:

- let the bottles stand for a while until the particles settle to the ground

- filter the water through a folded cloth
- Use alum or the crushed seed of Moringa olifeira for flocculation and sedimentation

5. Where to expose the bottles:

Explain the users that bottles have to be exposed to the sun for the whole day. It is important to find an open place that is not shaded after some time. Accompany the users in finding such a place. It is an advantage if bottles are exposed on places that are protected from the hands of children and animals. In many cases the roof can well be used for placing the bottles or a specific bottle stand can be constructed in front of the house.

6. The influence of the weather:

Explain to the users that the sunlight is important for disinfecting the water. On a bright day, the bottle is exposed for 6 hours. SODIS cannot be practiced on days of continuous rainfall. During those days users can collect rainwater, consume stored SODIS water or boil their drinking water. If it is very cloudy, the bottles should be exposed for two consecuting days.

7. Storage of treated water:

Explain to the users that treated water often is contaminated again in the household by dirty hands or dirty spoons/ cups. Therefore, the treated water should be stored in the SODIS bottles until the water is consumed. The water should be drunk directly from the bottles or from a clean glass.