



## What is SODIS?

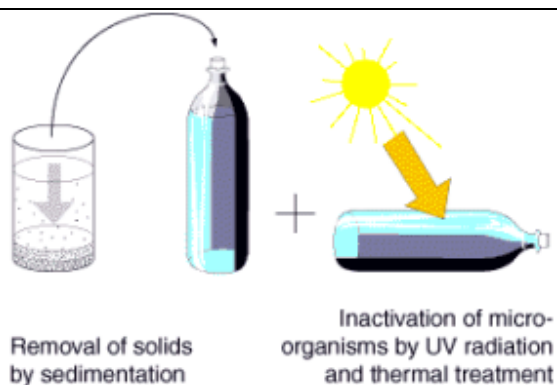
### SODIS:

- Is a simple water treatment method to eliminate disease causing micro-organisms in drinking water. Elimination of these organisms (disinfection) will generally make the water safe to drink.
- Depends only on sunlight. Electricity is not needed.
- Is one way to treat water at the household. It is ideal for small quantities of water – Each bottle can treat one – two litres of water in one day.
- Has a proven scientific basis.

### Limitations of SODIS - General

#### SODIS:

- Does not improve the water's chemical or physical quality. It does not make it clearer, or remove taste or harmful chemicals.
- Is not suitable for large volumes of water. Does require relatively clear water (see "Turbidity" below).
- Needs good sunlight to work (see below – Where can I use SODIS in Nepal?)



### Collect and prepare the bottles:

- Collect "plastic" mineral water bottles of 1 – 2 litre size. Allow about 3 litres per person in your home..
- Make sure the lid closes and the bottle does not leak.
- Clean the inside and outside of the bottles
- Paint the lower half side of the bottle (see diagram) with black paint

### Every Day to treat the water

- In the morning, fill the bottles completely with clear water to be treated. If water is not clear (see "Turbidity" below), first clean the water..
- Screw the cap tightly.
- Before 10AM place the bottles on a flat surface. Make sure that bottles will be in the sun until 3 PM (ie. not shaded)
- In the evening, collect the bottles.
- Screw the cap tightly.
- Let water cool over night and use for drinking the next day.
- In cloudy conditions (more than 50% cloud), expose the bottles for two days

How does SODIS work?

SODIS uses the sun's ultra violet (UV) radiation and its infra red radiation to eliminate disease causing micro-organisms. The water in the bottle needs to reach 50°C for one hour and the total sun's radiation must be higher than 500 Wh/m<sup>2</sup>.

Where can I use SODIS in Nepal?

During a cloudy winter day in some locations, the necessary conditions for SODIS may not exist at your site. In rainy or cloudy days, additional exposure time may be required.

Some locations in Nepal will be more suitable for SODIS than others. Some locations may be very good in the monsoon period, but not good in winter. Therefore research is now being carried out in Nepal to pick those locations and seasons where SODIS will work effectively. At this stage, we think that the best areas for all seasons will be the Central to Western Terai and high hill areas (subject to air temperatures).

Performance of SODIS

SODIS demonstration projects have been done in seven developing countries. Generally, the people have been very positive to SODIS.

However, like any new technology, when introducing SODIS, you must give the people relevant participation and involvement. Only then will you improve the success of SODIS.

SODIS in Nepal is very new. Good demonstration projects are yet to be carried out. After that, we can all learn how it will work here.

Small controlled tests have been done in Kathmandu and in Lumbini. In Lumbini, the International Buddhist Society has been using SODIS since 1999. The tests in Kathmandu show promising results, but radiation levels in some winter days are low. Sometimes in the monsoon season, its performance can be excellent, but under 1-2 days continuous rain and/or heavy clouds, it takes longer to work. See box for some results.

Turbidity

Turbidity (dirty) water protects the micro-organisms from being treated by the sun's radiation. If the water is too turbid, the micro-organisms will only be exposed to the heat effects which is not enough to kill them. Therefore, the raw water being treated should be as clear as possible. A simple turbidity test is to place a filled bottle on the SODIS logo (see top of page 1). Look through the bottle. If you can read the letters through the bottle, the turbidity is less than 30. If you can see the sun rays of the logo, the turbidity is less than 20.

If the turbidity is more than 30 (you can not read the letters), you need to clean the water. Try letting the water settle for one day and using the clearer top water only.

For more information

Web page: <http://www.sodis.ch/>

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Examples of SODIS Performance:

Concentration of Disease Causing Micro-organisms (safe water has zero)

Day Raw Water After treatment

A 180 0 (zero)

B 750 0

C 1500 24 (partly cloudy)

D 1200 470 (rainy, cloudy day)

E 470 0