

6<sup>TH</sup> WORLD WATER FORUM

# Solar Water Disinfection



MARSEILLE, FRANCE '12

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TIME FOR SOLUTIONS

# Development and Promotion of Solar Water Disinfection

Eawag took up research on SODIS in 1991.  
Promotion of SODIS in DC started in 2001.

Program focussed on the following activities

➤ **Technical Research**

- **microbiological efficiency**
- **inactivation mechanisms at cellular level**
- **material testing (stability of PET-bottles)**

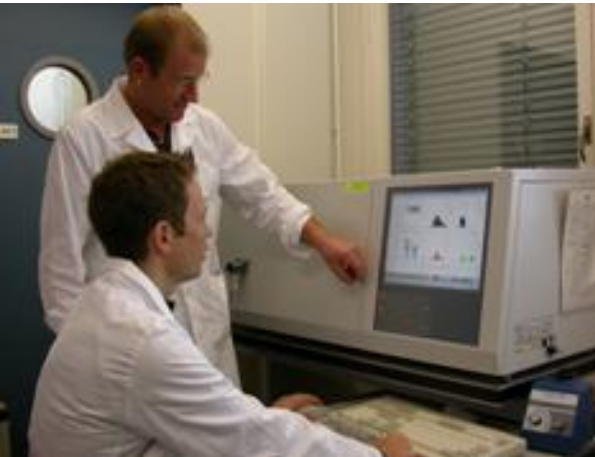
➤ **Research related to implementation**

- **evaluation of effective promotion strategies**
- **diffusion of innovations & behaviour change**
- **health impact assessment**

➤ **Global promotion in Developing Countries**

- **Currently used by about 5 Mio people in 23 countries (6 Latin America, 12 Africa, 5 Asia)**

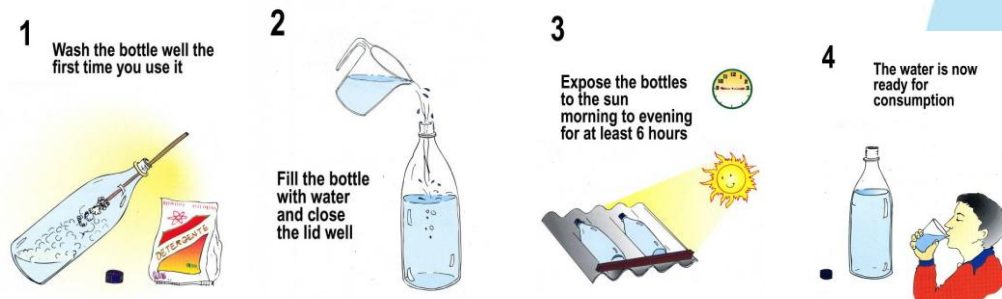
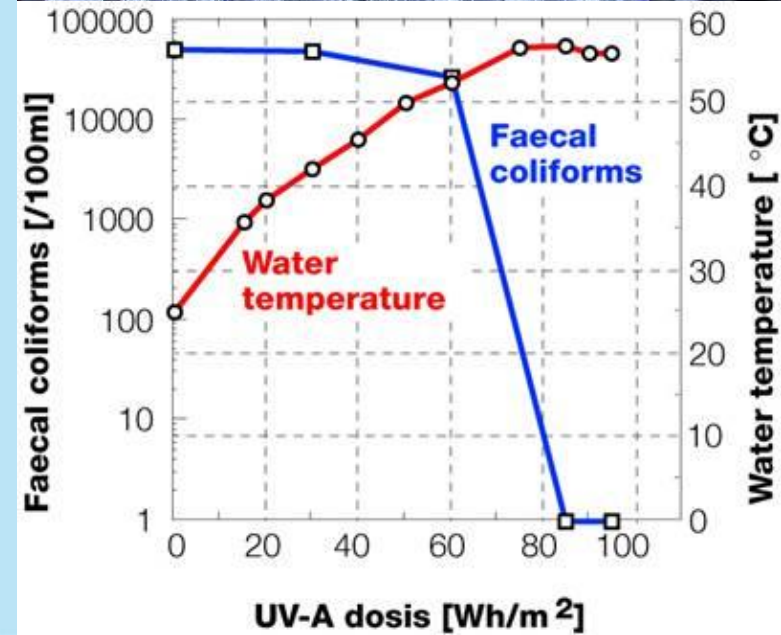
➤ **International advocacy and policy dialogue**



# Solar Water Disinfection (SODIS)

## Application

- **Transparent PET- or Glass bottles are filled with water and exposed to the sun for at least six hours**
- **UV-A radiation kills water borne pathoges. Fluence needed: 2000 kJ/m<sup>2</sup> or 555 Wh/m<sup>2</sup> (350-450 nm)**
- **A synergy of UV-A radiation and heat occurs if the water temperature reaches 50 °C -> only 1 hour needed for disinfection**



# Health Impact



- **Epidemiological SODIS Health Impact Studies revealed that consistent consumption of treated drinking water reduces diarrhoea risk.**
- **The Impact that can be achieved with a water quality intervention is dependent upon several factors:**
  - **Consistent practice of water treatment and consumption**
  - **Quality of raw water**
  - **Overall sanitary situation**
  - **Local hygiene practices**

# Lessons learnt from a global HWTS Promotion Program

- 1) → *People have to be convinced to treat their water (even if people know about risk they don't act)*
- 2) → *Habits have to be strengthened*
- 3) → *The availability of HWTS products is critical for the sustainable application*

## Challenges in the field:

- *Change of old habits*
- *Sustainable supply for HWTS products of often missing*
- *Lack of official guidelines and commitment for HWTS promotion*



# Behaviour change intervention strategy

**Sustainable application of HWTS requires a comprehensive behaviour change intervention.**

- ▶ **Provide knowledge**  
(Risk awareness and knowledge about solutions)
- ▶ **Convince & Motivate** (rational & emotional)
- ▶ **Influence external factors** (f.e. product availability)
- ▶ **Strengthen habits**
  - remind people & gain self-commitment
  - influence social norms & social influence



# Intervention examples

## Training of users

### Motivation

- Training of users through Promoters (f.e. Health Workers; NGO staff)

### Habit formation

- Education in schools
- Regular visits through promoters
- Display prompts and posters in the household

## Information campaigns

### Motivation and Habit formation

- Information through mass media

## Advocacy

### Motivation

- Involvement of opinion leaders, stars

### Habit formation

- Integration of community education into national policies, regulations and extension programs (f.e. health & education sector)



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