Umwelttechnikpreis Baden-Württemberg 2013

Germany Land of Ideas
Selected Landmark 2012

# SolarSpring

Solar-Driven Water Treatment

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Solar-Driven Water Treatment

**OFF-GRID POWER FORUM**
**Case studies and technical solutions**
**Intersolar Europe 2014**

# Solar-driven Water Treatment – Experiences in India

**Dip.- Ing. (FH) Lorenz Bauer, Project Engineer, SolarSpring**

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# Who we are

- Manufacturer of solar driven water treatment systems
- Solar driven water purification and desalination systems installed in over 15 countries worldwide
- Pioneer in Membrane Distillation technology in close cooperation with Fraunhofer Institute for Solar Energy Systems, ISE
- Selected landmark 2012 - innovations contest “Land of Ideas”
  1. Prize “environmental technology award 2013” Baden-Württemberg

Fraunhofer ISE

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# What we do

- Development of complete systems:
  - solar driven
  - energy-self-sufficient
  - capable for stand-alone operation
    (low maintenance, no chemical additives)

- Desalination technology
  Reverse Osmosis (RO)
  Membrane Distillation (MD)
  MD-Module development and production

- Water purification and water disinfection technology
  Ultrafiltration (UF)
  Ultraviolet (UV) light - Disinfection
  system-internal chlorine production by anodic oxidation (AO) - Disinfection

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# Applications, market & customers

- Stand-alone solutions / Decentralized water supply in remote areas
- Remote villages, individual water home systems, hotels, resorts, schools and other institutions
- Processwater and high purity water
- Industrial wastewater treatment through Membrane Distillation (Separation/concentration of volatile components

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# Our systems

## Solar desalination systems

- SolarRO desalination
- SolarMD desalination

## Solar water treatment systems

- SolarUF purification (Ultrafiltration)
- SolarUV disinfection (Ultraviolet)
- SolarAO disinfection (Anodic Oxidation)

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# Experiences in India

The Hope Project, New Delhi, India

- Installation site: school and community health centre
- Plant installed on the roof of the building
- supplies 7.000 litres per day of safe and pure drinking water
- includes a SolarAO Disinfection system for safe distribution of drinking water

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# Experiences in India

**S**afeguarding **W**ater Resources in **In**dia with **G**reen and **S**ustainable Technologies

SWINGS
SAFEGUARDING WATER RESOURCES IN INDIA WITH GREEN AND SUSTAINABLE TECHNOLOGIES

- Project 2012-2015
- 10 European and 10 Indian Partners (R&D, companies, SME, NGO and local body organisations)
- SWINGS project aims at generating **optimized municipal wastewater treatment** concepts by **combining "green" and sustainable technologies** for enhancing water recycling and reuse, decreasing energy demand **and utilising beneficial by-products** from the process as a secondary resource.
- http://www.swingsproject.eu/

COOPERATION

सत्यमेव जयते

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# Experiences in India

**S**afeguarding **W**ater Resources in **In**dia with **G**reen and **S**ustainable Technologies

SWINGS
SAFEGUARDING WATER RESOURCES IN INDIA WITH GREEN AND SUSTAINABLE TECHNOLOGIES

- The final outcome of the project will be to **provide treated WasteWater** as nutrient and soil enrichment resource, as **irrigation water**, as aquaculture farm feed and even produce **safe drinking water**.

- Technologies: Anaerobic Digestion, constructed wetlands, **solar disinfections systems based on UV** and Anodic disinfection)

COOPERATION

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# Experiences in India

## Smart, Cost-effective Solutions for Water Treatment and Monitoring in Small Communities in India – **Water4India**


- Project 2012-2016
- 11 European and Indian Partners
- Optimization and implementation of a set of technological alternatives for water supply in India
- Technology: **Solar-driven Ultrafiltration system**
- Implementation focus on eastern part of India
- http://www.water4india.eu/

COOPERATION
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# Experiences in India

## Little Big World e.V.

Decentralized solar driven drinking water supply in India

| | |
|---|---|
| Village: | Haranmal, District Padra, Gujarat, |
| User: | ca. 2.000 Menschen, 50% < 20 Jahre |
| Current situtation: | well-water not potable,<br>children daily collect water from<br>neighboring villages (2 miles walking distance) |

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# Experiences in India

## Little Big World e.V.

| | |
|---|---|
| Local disease: | Cholera, Typhus, Shigellose, Hepatitis A and other gastrointestinal disease |
| Technology: system | Solar-driven Ultrafiltration |
| Capacity: | 5.000 liter per day |

# Experiences in India

## Learned Lessons

- High demand for decentralized water treatment applications
- Very high price sensitivity, but appreciation of quality “Made in Germany” increases
- Relatively high bureaucratic/administrative efforts until implementation
- Need for reliable & professional local partner(s)
  - => administrative work
  - => shipping/custom support
  - => support during implementation & commissioning
  - => service & maintenance
  - => reliable & regular water analysis (...if not integrated and monitored)

- Need for direct integration of user during planning and financing enhance acceptance and appreciation (valuation) of system which leads to better care of proper functionality

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# Thank you for your attention !

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