

PRIVATE FINANCE FOR CLEAN DRINKING WATER PROJECTS

Grasshopper Investments GmbH/ INWASOL



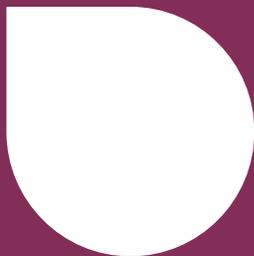
Grasshopper Investments and its subsidiary Intelligent Water Solutions (INWASOL) are two German companies specialized in innovative private funding structures and the development and operation of water projects providing 'Clean Drinking Water' in developing countries.

Not only do they provide solutions for clean drinking water using modern production and disinfection technology made in Germany, but also do they offer pre-financing structures through private funds. And if needed, they take care of the water distribution as well as for the long term operations. In fact, they offer the entire value chain and combine it in one and sustainable concept.

In 2015, Grasshopper Investments is going to start its business activities in India and is seeking partners in the water sector to realize joint projects.

Solutions for Indian Waterworks

Many waterworks in India use traditional water disinfection methods such as chlorine gas or no disinfection method at all. Besides the fact that chlorine gas has a strong, chemical taste, it also imposes high safety risks in handling and storing.



THE REDO PROCESS ELIMINATES ALL BACTERIA,
VIRUSES, GERMS, AND FUNGI.

Container Projects



Upgrading the water quality of a waterwork and using its existing piping system is the most effective way to provide a population with clean drinking water. Therefore, Grasshopper Investments/ INWASOL deploy innovative disinfection technology from their German partner, REDO Water Systems.

10 years ago, REDO Water Systems received the Federal Award for an Innovative Product from the German Federal Ministry of Economics and Labour. Since then, a large number of waterworks and companies in various industries and more than 30 countries utilize the technology from REDO Water Systems for water treatment. The REDO system consists of two main components, namely innovative technology (more effective, eco-friendly and more economical than alternative methods) and fundamental know-how in regards to particular use cases and the economic benefit of this technology in specific processes for waterworks.

The treatment of the water with REDO units occurs through the supplement of the disinfecting solution REDOlyt. This disinfecting solution is continuously produced within the unit through an advanced form of electrolysis and is fed into the water. The REDO process eliminates all bacteria, viruses, germs, and fungi. The result is clean drinking water without any bad taste, odour or colour. The REDO solutions are very easy to handle and to maintain. Therefore the operation and maintenance costs remain low.

Solutions for Rural and Suburban Areas

People in rural and suburban areas of India suffer from lack of clean drinking water. For these areas, Grasshopper Investments/ INWASOL developed an easy plug & play solution. They produce clean drinking water, locally, with pre-financed, pre-engineered and pre-installed water purification containers. With these water containers, equipped with Western water technologies,

	UV	Ozone	Chlorine	Chlorine dioxide	REDOlyt
Operating resources	Energy	Oxygen + Energy	Chlorine gas, Hypochlorite	HCl / NaClO ₂	Salt + Electricity
Disinfecting performance	Middle	Strong	Middle	Strong	Strong
Depot effect	None	Very short	Long	Very long	Very long
Hazardous potential*	Middle	High	Extreme	High	Very low
Operating costs	High	High	Middle	Middle	Very low

Table 1: REDO Technology in Comparison to other Disinfecting Methods



**REDO
 Installation
 Waterwork,
 Oman**



any source of water can be used to produce clean drinking water.

Every INWASOL Water container is designed and tailor made for the local water quality and combines water technologies for the specific water treatment of each project. The technology design depends on the water quality and on the water source: e.g. riverwater, lakes, groundwater, public water supply with low quality, or water from other sources like rainwater harvesting. www.grasshopper-investments.com

Another challenge in rural and suburban areas is the distribution of water. Very often a functional pipe system does not exist. In this case, Grasshopper Investments/ INWASOL can develop and execute schemes for alternative distribution channels to provide access to clean drinking water for a wider population. www.water-projects.com

Pre-Financing

Water infrastructure projects worldwide are currently financed mainly



**Waterwork
with REDO
Technology
Middle East**

through state programs and development banks. Grasshopper Investments narrows the 'gap of finance' using private funds for its projects. This allows a faster realization of such water projects. www.waterdisinfection.de

Sustainability

Grasshopper Investments /INWASOL have a strong focus on sustainability for their water projects and aim to involve the local population wherever possible, e.g., by involving water entrepreneurs for alternative water distribution schemes, by creating new jobs or by cooperating with Non-Government Organizations (NGOs).

Thus, Grasshopper Investments is also founding member of 'Clean Water e.V.', a German Charity Association that aims to improve the availability of clean drinking water where it is needed. The current main activities and projects of Clean Water e.V. are the installation of water kiosks and the support of NGOs in India such as 'United for Hope'. Both associations have decided on a co-operation to enable clean drinking water in sustainable showcase villages from United for Hope in India. The first joint project will be implemented in Tirmasahun, a village in Uttar Pradesh of 4000 people.

Combination of Disinfection in Waterworks and Water Container Projects for Rural Areas

The most effective and easiest way to reach a large number of people with clean drinking water is to use the existing infrastructure, i.e., waterworks and its pipe systems. However, it is important not to ignore those people who have no access to public water systems.

Therefore, a combination of both solutions can help. The water quality from public water supply can be upgraded and made drinkable by disinfection and be provided through the public pipe system. Where the public water supply over the waterwork with pipes ends, e.g., in rural or suburban areas, water container projects can be deployed for additional local water production and distribution over alternative water supply schemes. And in case the pre-financing of such projects is too challenging for a municipalities or waterworks, Grasshopper Investments can provide solutions as well.

About the Contributors

Grasshopper Investments GmbH is headquartered in Frankfurt am Main, Germany. It is an independent investment boutique specialized in sustainable funding structures for water projects in developing countries with a focus on Clean Drinking Water.

INWASOL (Intelligent Water Solutions GmbH) is a company for water project development and an affiliate of Grasshopper Investments. Together they offer water concepts, finance models, technology solutions and operation with involvement of local partners.

To know more about the contributors, you can write to us. Your feedback is welcome and should be sent at: mayur@eawater.com. Published letters in each issue will get a one-year complimentary subscription of EverythingAboutWater Magazine.