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Arab Water World

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The Day is Saved:
Punjab Overcomes Water Sanitation Issues

Many rural villages in India lack access to a basic drinking water supply. The systems typically installed to date, that are of marginal quality, require access to grid power supply, constant maintenance and waste 50% or more of the raw water intake in the purification process. However, there are better ways to serve rural Indian villages while preserving scarce resources. That's why ***Aqua Infinitum GmbH****, authorized* ***Trunz Water Systems*** *Representative for India, recently installed a high volume, solar powered, water purification plant in Saila Khurd, Punjab – a typical rural village that lacks sanitation and access to a source of purified drinking water. Located centrally in the village, the water station delivers approximately 21,600 liters of purified drinking water per day to more than 3,500 villagers.*

"This system treats impure fresh water using an ultra-filtration process to remove biological contamination"

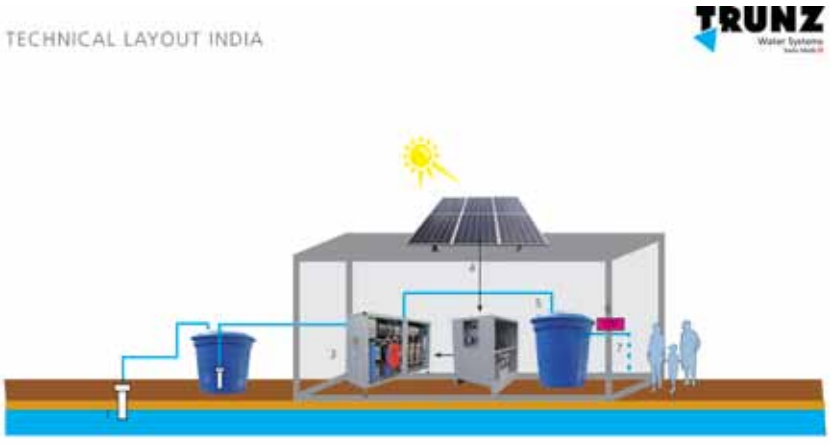
The water station is part of Aqua Infinitum's corporate responsibility program and reflects the company's commitment to environmental sustainability and meeting the UN Millennium Goals of providing access to purified drinking for all. The project came as a part of the solution to the underlying water issues in India. These issues are:

- Every 80 seconds an Indian child dies of water borne illness
- One in 10 hospital beds in India are occupied by patients suffering from water related illness
- In terms of economic loss, India loses USD 50.3 billion annually due to bad sanitation. This amounts to 6.4% of GDP of India (according to the World Bank report 2011 based on 2006 statistics).

Project description

The objective of the installation was to provide the villagers of Saila Khurd with a safe dependable source of purified drinking water, on-demand, 24 hours per day, and to do so using world leading sustainable technology that had not yet been installed in India. The combination of solar power, chemical free treatment and low water discharge makes this Village Water Station 100% carbon neutral. Aqua Infinitum selected a Trunz TWB 002 system to meet both the village volume requirements and the local water conditions. This system treats impure fresh water using an ultra-filtration process to remove biological contamination, and has an hourly production capacity of up to 1,200 liters per hour with virtually zero wastewater.

Grid power is sporadic or unavailable in rural areas. Meanwhile, India is a country with one of the best solar radiation ratings on the planet making solar power not only a logical choice, but also an efficient and dependable source of power. A series of 6 solar panels was installed, along with inverters and a Power Center to run the equipment with sufficient stored power within its gel battery bank to provide 24-hour operation. The Saila Khurd project was completed in collaboration



1 Bore Well input submersible pump
2 Raw water holding with input submersible pump 2,000 liters
3 Water purification system TWB 002
4 Power source - solar power center - 6 panels, 4 batteries, inverter
5 product water holding tank 2,000 liters
6 UV post production treatment for water on demand
7 Manual tap dispensing system

www.trunzwatersystems.com

with a local NGO, the Indo-Canadian Village Improvement Trust (ICVIT) who identified the village for sanitation and water supply improvements. Initial logistics, including sourcing a local construction team and materials was also provided by the ICVIT.

Choice of location for the village water station was one of the most important considerations. Convenient access for the villagers was critical, however so too was security and maintenance since this was to be a showcase facility. Ultimately, the selected location was collaboratively agreed between the village Punchayat, ICVIT and the neighboring paper manufacturer **Kuantum Paper** who generously offered to support the project with security, as well as post installation operational support and maintenance, since the site is conveniently located close to their plant.

"All villagers have access to free purified drinking water"

Land for the water purification station was supplied by the Village Punchayat (Council) and is gifted for indefinite use. Approval was also required from the Punchayat for access to the local water source. Initially, water was supplied from a standpipe that supplied one end of the Village with low-pressure water for approximately 4 hours per day, direct from a local aquifer. The lack of high volume source water supply necessitated installation of a raw water tank, although this was also insufficient to meet the purification speed of the Trunz equipment and the demands of the Villagers. Shortly after commissioning, the Village completed a high pressure pumping system drawing water from an aquifer 3km away. Source water is now piped directly to Aqua Infinitum's water station, and the original raw water tank has been redeployed within the system to provide additional purified water storage.

Architecture was provided by a young freelance female architect, *Kirat Dhillon*, and construction provided by local labor. Building design considerations were tailored for the local climate and realities of rural village life, including; grated window vents for air circulation and natural cooling of equipment, sealed ground level doors and apertures to keep out animal life, water run off provisions in contemplation of monsoon season, and a tiled water dispensing area to allow for easy access and cleaning. Many of the design considerations included input from the village community.

Construction followed local building methods but of sufficient quality to withstand the rigors of rural village life and the environment including; brick walls finished with painted plaster, a reinforced concrete floor to support interior water tanks and a reinforced roof to support the solar panels. Signage is manufactured from shatterproof Plexiglas. Traditional bamboo scaffold was used during construction of the roof. The entire construction project spanned 12 weeks from commencement of site preparation to completion.

Operating Status

As a direct result of this installation, a local micro-economy has emerged around the water station, including a variety of business such as food stands and general stores. It has become a central hub of village activity. Further employment opportunities have been created – primarily delivering drinking water to local homes, water station security, along with building and equipment maintenance and cleaning of solar panels. The plant produces water 24 hours per day, on demand and automatically recharges the supply as water is 4-dispensed. Since commissioning zero maintenance or filter changes have been required.

Installed Unit

Trunz fresh water treatment system - TWB 002 with pump protection filter. Power center TSPC 700 4/6 with inverter, battery charger and UV post treatment system.

Who gets the water?

All villagers have access to free purified drinking water. Production of drinking water still exceeds demand for this village so no restrictions on volume have been implemented. ■

Source:

Jennifer Beresford, founder of Aqua Infinitum GmbH
Lars Willi, COO at Trunz Water Systems
Web: *www.trunzwatersystems.com*

تعاني العديد من القرى الريفية في الهند من نقص في إمدادات مياه الشرب الأساسية. تتطلّب الأنظمة الموجودة حالياً، والتي هي ذات مستوى تقني متدني، الوصول إلى شبكة إمدادات الطاقة، صيانة مستمرة ونسبة ٥٠٪ أو أكثر من امتصاص المياه الخام للنفايات خلال عملية التنقية. ومع ذلك، هناك طرق أفضل لخدمة القرى الريفية في الهند مع الحفاظ على الموارد القليلة. لذلك، عملت شركة Auqa Infinitum GmbH، التي تمثّل شركة Trunz Water Systems في الهند، مؤخراً على تركيب محطة لتنقية المياه تعمل بالطاقة الشمسية وتمتلك قدرة تخزين عالية، في قرية ريفية نموذجية في بنجاب تفتقر إلى أنظمة الصرف الصحي وإمكانية الحصول على مصدر للمياه النقية الصالحة للشرب. متمركزة في موقع رئيسي من القرية، توزع محطة المياه الجديدة حوالي ٢١،٦٠٠ لتر من المياه النقية الصالحة للشرب يومياً إلى أكثر من ٣،٥٠٠ من سكّان القرى.