

Multi-pump installation in India

Drinking water supply for Kelkang



Subject	Kelkang Solar Pumping System	Location	Kelkang, India
Application	Drinking water	Project Partner	P&V Eastern Engineers
Size	100 m ³ /day for 1040 people	Installation	2016

Kelkang is a village in North-East India with about 1040 inhabitants situated at 1287 m above sea level. Electricity and water supply are a big challenge in this area. Families have to cover long distances several times a day in order to get drinking water from a river.

To guarantee a reliable water supply for the inhabitants of Kelkang, in total eight LORENTZ PSk2 pumps have been installed at various heights to pump water up to 520 meters. The total distance from the first to the last pump is 4 km. The pump systems deliver altogether more than

100 m³ of water per day for the village. LORENTZ solar systems provide drinking water reliably and at very low costs for the villagers. As children and their families do not have to fetch water every day, their health and sanitation level can be improved significantly.

LORENTZ 
The Solar Water Pumping Company

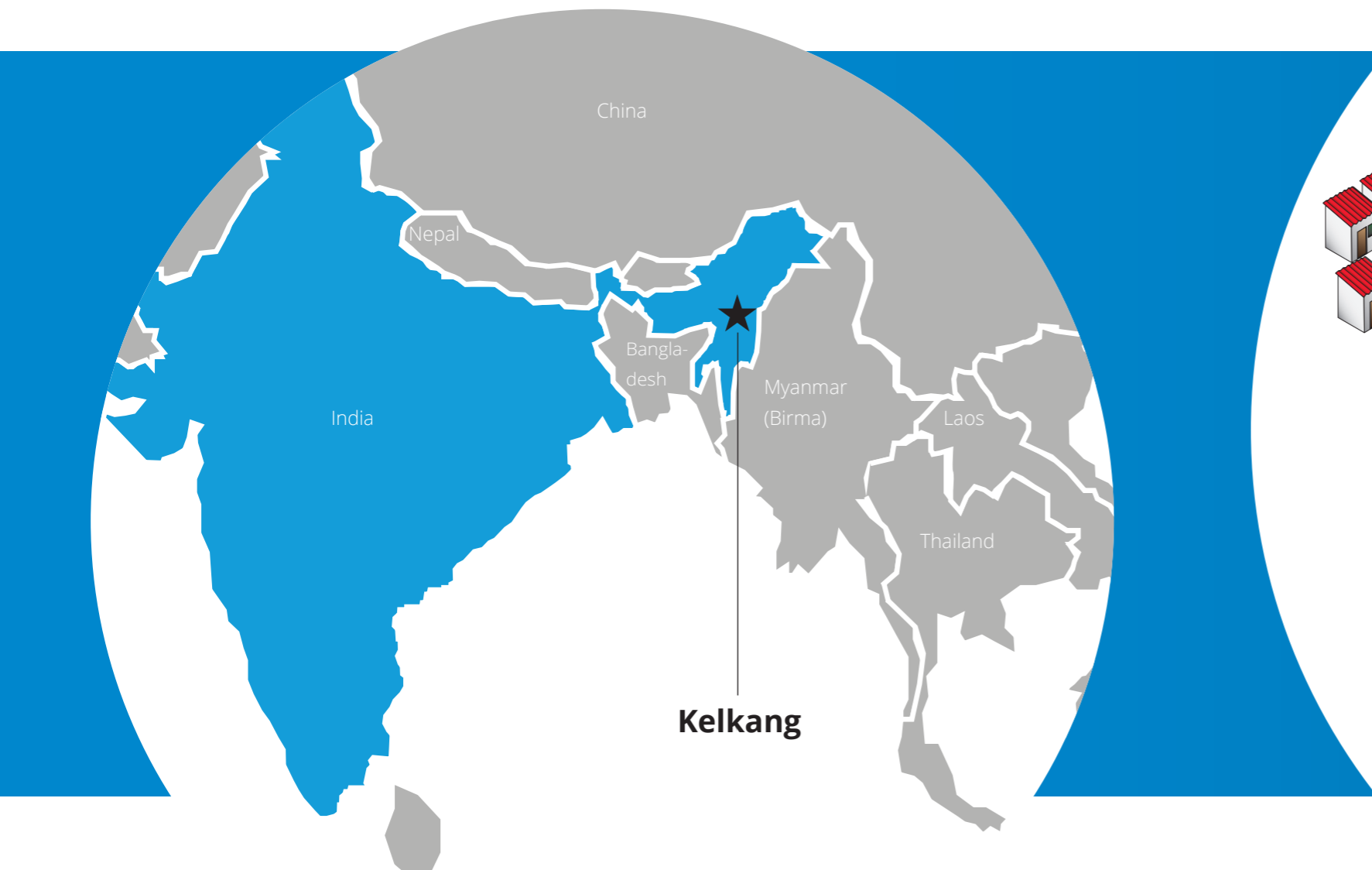
Problem

Kelkang is located in a rather isolated, mountainous, densely wooded region with little infrastructure. Grid supply is erratic and unreliable. Costs for electricity are far too high for the inhabitants.

Water supply is a big problem as people have to walk for hours to get clean water from a river.

Using diesel or electric pumps in Kelkang is no option because the price for diesel has gone up, the supply of diesel to Kelkang would be a challenge and the quality of grid power is very poor.

The ideal solution for Kelkang are stand-alone, environmentally friendly solar water pumping systems which need little maintenance at low costs and allow remote monitoring in order to have control over the pumps.



P&V Eastern Engineers, a turnkey engineering and consultancy firm, reported the problematic situation of Kelkang to government officials and convinced them that LORENTZ solar water pumps are the right solution.

The local authorities approved the concept of installing a solar water pumping solution with monitoring options as a pilot project. The installation started in April 2016 and was finished in August 2016.

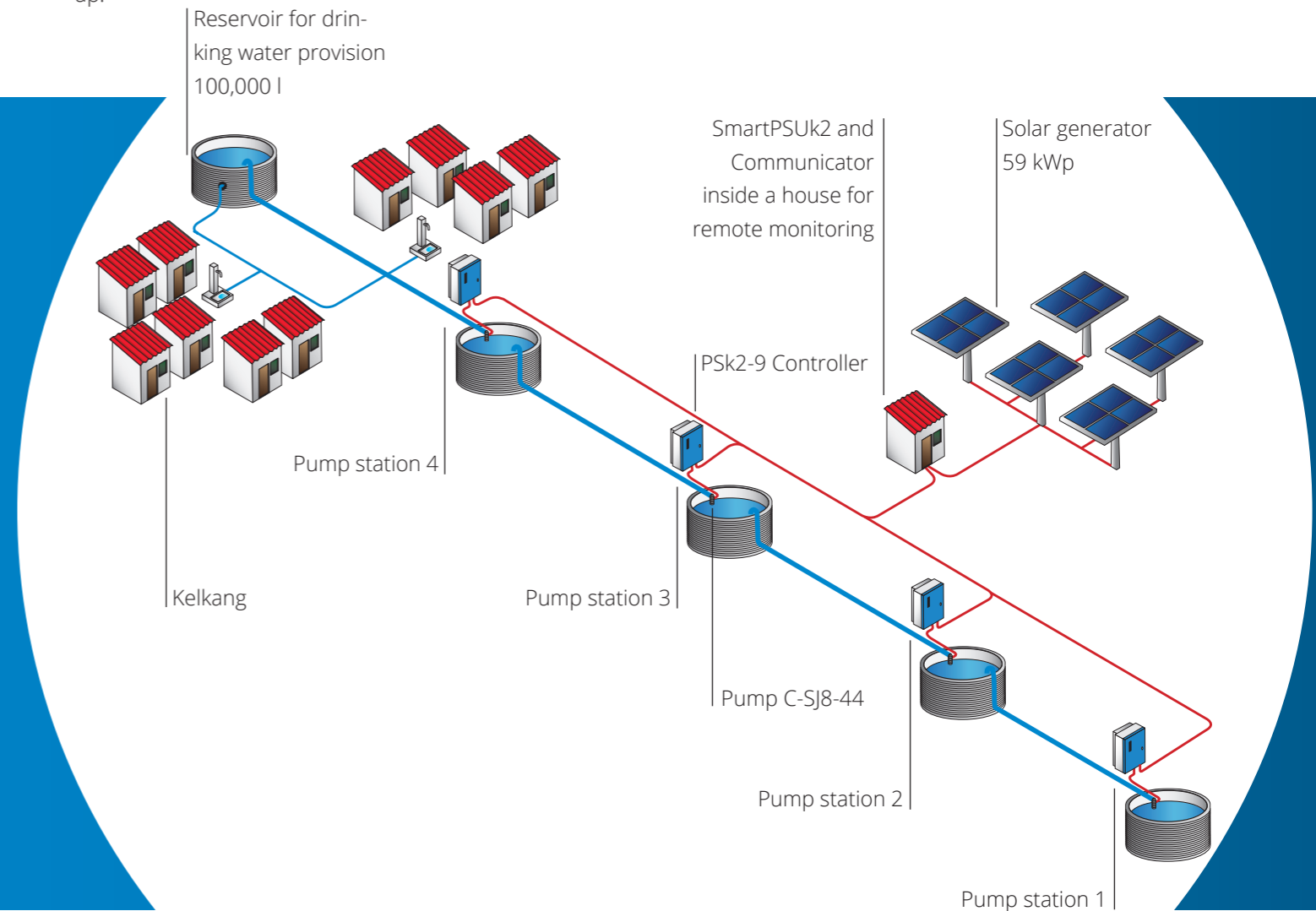
The Solar Water Pumping Company

Solution



P&V Eastern Engineers designed a LORENTZ solar water pumping solution with eight pumps in total and optional hybrid power supply as well as monitoring and remote management as pilot project for Kelkang. There are 4 pumping stations, each having installed two LORENTZ PSk2-9 C-SJ8-44 pumps. One of the two pumps in each station is permanently running, the other is used as back-up.

One pump of the first station pumps water from a reservoir close to a river 4 km south of Kelkang to the reservoir of the next pump station. This way water is transported up to 520 m in 4000 m of pipeline across 4 pumping stations to a 100,000 liters reservoir near the village Kelkang. In Kelkang, the water is distributed by gravity to several water taps in the village.



The pump systems are powered by a 59 kWp solar generator equipped with 192 modules. One of the systems is installed with a LORENTZ SmartPSUK2 allowing to connect diesel as an auxiliary power source to the PSk2 controller of the second pump station. When there is insufficient solar power to meet the required demand of water, the SmartPSUK2 allows seamless and automatic blending of a second power source.

The same system is connected to a PS Communicator. This device facilitates local and remote monitoring and management of the pump system. By using the Pump-Scanner application for Android Smartphones the pumps are quickly configured and parameters set and changed if needed. Furthermore, the pumps can easily be monitored via LORENTZ pumpMANAGER, a remote monitoring service which can be accessed from any standard computer.

PumpScanner

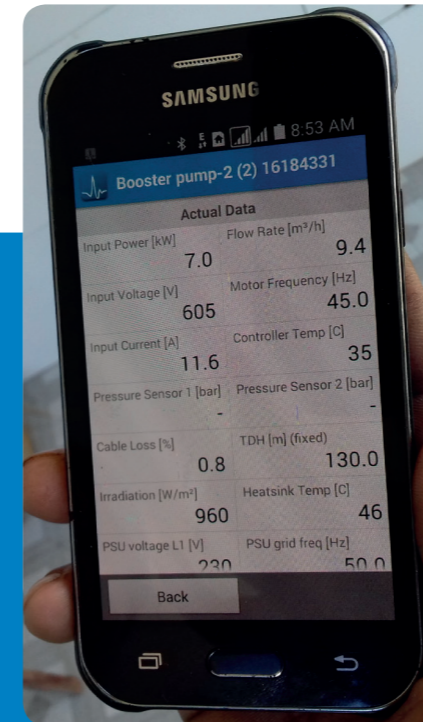
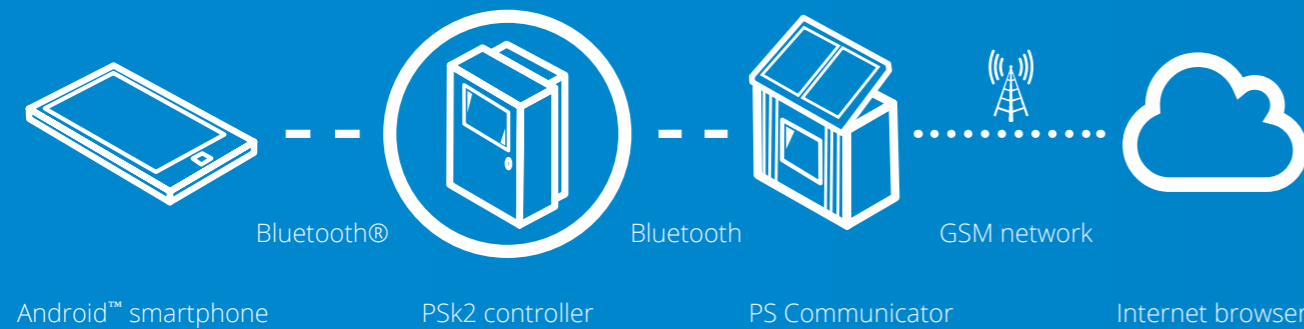
Detailed on site information and configuration.

pumpMANAGER

Advanced but simple monitoring and management of your system remotely.

PumpScanner

pumpMANAGER

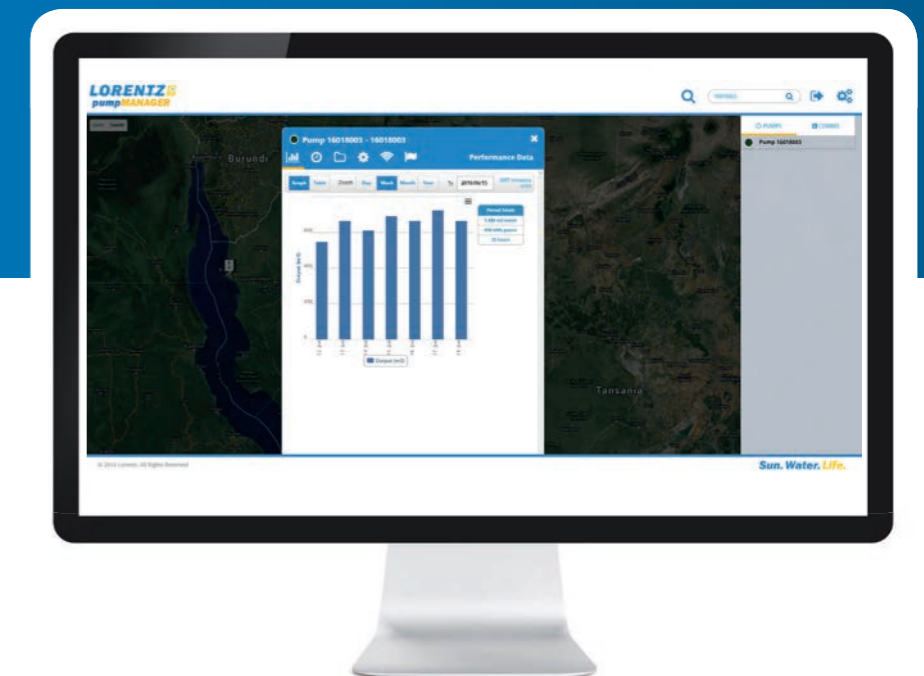


Daily amount

The LORENTZ pump system can be configured to pump a specified amount of water per day. For Kelkang 90,000 liters are set (the picture on the left shows a flow rate of 9.4 m³/h).

PumpScanner

pumpMANAGER



The PSk2 is part of the LORENTZ CONNECTED software eco system. The system is configured on site by the installer using PumpScanner, an Android™ based App. Common configuration is done with three clicks and there is full access to configure system behavior based on additional sensor inputs. The PSk2 constantly records operational data and provides access to rich information for both customers and technicians.

The PSk2 can also be connected to our pumpMANAGER managed service. This is a simple, cloud delivered, pay monthly service that takes away the complexity of remote monitoring and management. One low fee means that you can see exactly what the system is doing, make changes to settings and receive alerts irrespective of location.

Remote monitoring

Fully monitored and managed on any web browser with pumpMANAGER, the pumps in Kelkang can be reconfigured at any time to flexibly meet changing demands. Servicing costs are lowered as the pumps' status can be checked online.

Photos



Results



► The use of solar water pumps instead of grid connected generators or diesel pumps means that about 1,000,000 INR / 14,000 Euros are saved per year. The people of Kelkang only have to pay a small fee which is used for paying the salary of the technicians and for future maintenance requirements. Drinking water is now provided in an environmental friendly, clean and sustainable way, avoiding that 95 tons of CO2 are polluting the atmosphere every year.



► People now have free access to clean drinking water after a few minutes walk. The national standard for liters per capita per day in India is 55 liters for rural areas. With the LORENTZ PSk2 systems, every inhabitant gets more than 200 liters. Having enough clean water means that the health and sanitation level of the people can be improved significantly. Some of the excess water can be spared for animal, livestock and kitchen gardening which improves the income of the village.



► The system is fully monitored. Settings can be changed locally and performance data accessed via the free LORENTZ Android™ App PumpScanner. Remotely, these options are available online through LORENTZ pumpMANAGER. Pump behaviour can be adjusted by the click of a button.

Contact

About P&V Eastern Engineers

P&V Eastern Engineers, a turnkey engineering and consultancy firm founded in 2008, is an approved LORENTZ Sales and Service Partner in India. Their mission is to plan and engineer a sustainable future to mitigate environmental challenges with the objective to provide the most sustainable integrated approach to various solutions by utilizing latest state-of-the-art and indigenous technology. P&V Eastern Engineers renders services in Rural Development, water supply and management, sanitation renewable energy and Bio-Energy.

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About LORENTZ

LORENTZ is the global market leader in solar powered water pumping solutions. Founded in Germany during 1993 LORENTZ has pioneered, innovated and excelled in the engineering and manufacturing of solar powered water pumping. Today LORENTZ is active in over 130 countries through a dedicated network of professional partners. LORENTZ technology uses the power of the sun to pump water, sustaining and enhancing the life of millions of people, their livestock and crops.

Simply - **Sun. Water. Life.**



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