

Water Purification System Powered Exclusively By Renewable Energies In Phalaborwa, Kruger National Park



Takatso's autonomous and self-sustainable water purification system providing safe drinkable water has been implemented at a ranger camp near Phalaborwa at the Kruger National Park (South Africa) on November, 29th 2021. The project will be commissioned under a Proof of Concept Agreement between the South African National Parks (SANParks) and Takatso (Pty) Ltd - a South African engineering and project management start-up - to assess Takatso's technology performance and deliver results sought by SANParks for a duration of one year.

The main objective of the research will be to demonstrate that brackish water can be effectively and autonomously purified to potability using renewable energies in a completely isolated area. The project has been initiated by a team of experts from SANParks and Takatso in order to comply with the long-term obligation to reduce water consumption as well as to offer a more efficient solution for water access in remote areas.

Two locations have been originally considered to implement Takatso's purification system, however after thorough researches and discussions about SANParks requirements, both parties decided to choose the ranger camp near Phalaborwa for the following reasons:

- Poor water quality (which will serve to demonstrate Takatso's solution performance)
- Existing borehole infrastructure with pumps and reservoirs
- Secured area within the ranger camp
- Accessibility to the Klein Letaba River and Groot Letaba River

Takatso's system consists of two main units:

- The Power Plant, including solar panels, inverters and batteries
- The Purification Plant, including pipes, pumps and tanks

The water purification system is powered exclusively by renewable energies. The solution is a fully autonomous off-grid system powered through an off-grid PV system using solar panels to purify the water. No connection to power grids is required and electricity production surplus can be used for private and external consumption.

The supplied module is a complete containerized package with all components as an out of the box plug and play system; which results in very competitive costs, ruggedness, easy transportation and installation. The process involves drawing water from the existing borehole to pump it into a purification system through a holding tank and a series of filters, valves and pumps. The processed water will be held in a tank onsite and directly distributed to the ranger camp for use. The module designed will produce 500 litres of clean drinkable water per hour; which will meet the ranger's camp daily water use requirements.

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