A new day dawns for Jansenville

By: Lesego Malete

Professor Conrad from Potsdam and community members who are in charge of the waterhouse

Testing the collectors

astern Cape gem Jansenville, is the 'chosen' town for the first installation of a waterhouse aimed at improving water management and thus the living conditions for poor people in rural areas.

The German Federal Ministry ol Education and Research, together with its South Atrican counterparts, the National Research Foundation, have collaborated on this demonstration project to supply water into the communal wa-terhouse which contains equipment for laundry, sanitation, and communal activities. Totaling R600 000, the initiative was undertaken in order lo encourage the community to use the facility for laundry and for showering.

The project began in 2007 and has endured different phases to reach the final stage. A thorough scientific research was conducted to ensure that the correct technologies were used, and an experimental and demonstration unit was built. In addition, an on-site processing was completed to approve the performance of the installed system under practical conditions in order to take into consideration the people's needs.

At the forefront of the project was the University of Potsdam in Germany. The university searched for a solar company capable of handling such a project and found a willing partner with Grammer Solar.

"Grammer Solar is one of the oldest solar companies in Germany and we produce solar-air-collectors. We are the market leader in the 'small' market ol solar-air-systems." says Ettl Rudolf, a technician at the company.

In order for the project to be a success. Grammer needed a South African partner to work with who knew the country's conditions. Solar Heat Exchangers, who distribute Grammer products in South Africa, was selected as a partner, and Shaun Reiche, the project manager, was in charge of over seeing the installa-

tions with the help of Ray Nolan and his team from Solien.

Reiche believes that there's a growing market for Ihese products in South Africa as the country is gradually starting to use solar more and more

Product solutions

Four Twinsolar collectors were installed in April 2009 under the directorship ot Reiche, and these included the two 36 m2 SLK collectors, and two 1500 litre solar for the showers and laundry rooms. The maximum airflow in the communal water house amounts to 1 400 m^3/h. Weighing only 45 kg each, the collectors posed no problems to assemble as they are not heavy.

The communal water house in Jansenville has been installed with Twinsolar because it has a simple ventilation system. These are independent air collector systems for heating and ventilation.

They work easily. During operation of the solar air-system, outdoor air is torced through Ihe twinsolar collectors by means of a ventilatoi thus heating the air. The healed air is pushed into the building and supplies ventilation and covering at aboul 20 - 40% of ils heating requirements. In more simple terms, once the sun is shining, solar air collectors begin their work and produce fresh warm air.

Why use this **system?**

Grammer chose the Twinsolar solar-air-systems as it is a combined syslem that includes heating, ventilation, and hoi water supply. The system will also ensure that the building is protected against moisture.

With this system in place, it will not cause linancial headaches tor the local municipality as it is mainlenance-free and saves money in operating costs. The Twinsolar system is also easy to install and does not require external elecIricity due to Ihe integrated photovoltaic, allowing it to deliver energy for the ventilators, pumps, and controllers.

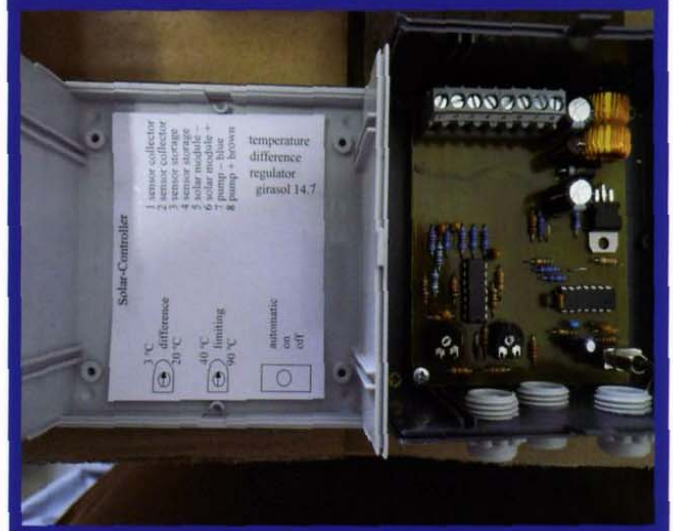
Design aspects

According to Rudolf: "The aim was to create a functional solar system which can be easily combined in similar waterhouses. The design was not so essential."

When asked about Ihe elements of difficulty in meeling design specification, Rudolf states: "The innovation of the solar system was to combine standard-collector elements with only small modifications to a new big plant which work totally independently. Normally our big-

One row of collectors installed

Dektite roof seal for ducting tube



Temperature Differential Controller (TDC)

Ventilators from the rows of collectors

The mounting plates were correctly installed to ensure that the water-house would run efficiently.

Talking about sensor probe placement are Shaun Reiche and Professor Conrad from Potsdam

gest Twinsolar have a collector surface of 12. 5 m^2, but for the waterhouse, we have designed a Twinsolar system with 72 m^2.

"One of the most important components of the solar-system is the new developed SolarBox "Jumbosolar". This SolarBox has been developed and tested in Germany and then installed in the waterhouse." he adds.

As with any project, a few glitches here and there occurred with the communal project. There were delays along the way because of building construction, but the proiect was finally completed on the 30 June. 2009.

Is this a sustainable **project?**

Alongside the University of Potsdam, Pontos GmbH Hansgrohe was also a partner in the project, involved with the greywater treatment in the waterhouse for the recycled water. The recycling process is quite simple and eliminates water wastage.

Fresh water feeds the hot water storage tank tor use in the showers and basins, which will feed the Pontos treatment plant. Thereafter, the grey water is cleaned and treated to be fed to the hot water storage tank which will be utilised for the laundry's hot and cold water points. The dirty grey water from the laundry runs directly into Ihe sewer and once treated, it is fed to the toilets lor flushing. The black toilet water runs directly into the sewer.

Solar heat exchangers installed the solar equipment and as of June 2009, they are the general dealer for Grammer solar-air-systems in South Africa.

Ikwezi Local Municipality are the beneficiaries for this project. 'Is this a sustainable projecf[1] The answer to that rests with Rudolf who let it slip that "we are already in discussion with the Ikwezi municipality (30 km from Jansen-ville] about the next waterhouse in the village Waterford."

The Solarbox uses the air collector systems to generate solar hot water. The warm air at temperature ranges oi 60 - 90°C from *the solar-air-collector is circulated in a closed loop between Ihe collector and the heat-exchanger. The water heating is affected by a special air-water heat exchanger. The six-row tubes-styled exchanger* surface *area made out ol copper tubes with aluminium lamellas, guarantees an extremely high and efficient heat transmission. 0*