

earthworks

FOR A SUSTAINABLE BUILT ENVIRONMENT

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Francis Kéré's

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The case for rock stores

notable

COMPILED BY SHAMIELAH SALIE



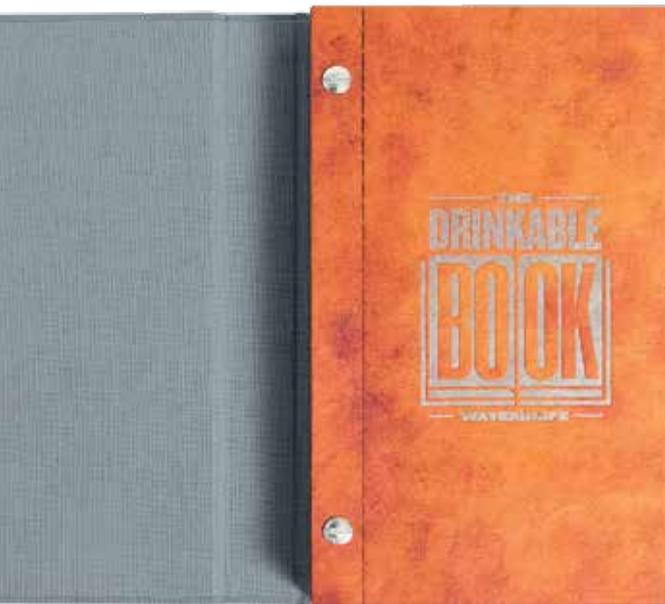


R1.5BN SOLAR PLANT UNVEILED

Situated on 100ha in the Northern Cape, the 50MW Droogfontein photovoltaic plant is one of SA's first large solar farms. The project is part of government's Renewable Energy Independent Power Producer Procurement Programme (REIPPPP).

The facility is privately owned by renewable energy company Globelec and other partners that signed a 20-year power purchase agreement with Eskom to provide a 132kV gridline and generate 85 458MW a year – enough electricity to supply around 19 000 average homes. The plant has benefited the local community, creating approximately 500 jobs during peak construction.
www.droogfonteinsolar.co.za

©Droogfontein Solar Power Plant



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READ, FILTER, DRINK

Rusty-orange in colour, The Drinkable Book, looks like a normal book. This 20-page manual not only conveys information, but is also a complete water-filtration system.

Launched by communications group DDB New York for charity WaterisLife, the book's main goal is to serve as a valuable tool for preventing waterborne illnesses in the developing world, says Dr Theresa Dankovich, the chemist who developed the filter paper.

Each page is about a millimetre thick, printed in non-toxic ink and has its own little filter, which can clean up to 100 litres of water. It contains silver nanoparticles that rid the water of harmful microbes. Each page gives 60 days of safe drinking water, which means the entire book lasts for up to four years.

To use the book, you rip one of the pages in half, slide it into the filter box – which doubles as a cover for the book – and pour contaminated water through. After a few minutes, bacteria are reduced by 99.9%. The top half provides water safety tips in English, while the bottom is translated into the relevant local language. So far, the book has been distributed in Kenya.

The paper and chemicals needed to produce the book are cheaper than most other water-filtration mechanisms. "It doesn't require power and it's very intuitive."

The team tested the paper in South Africa last year and is planning to field test some form of the book later this year. They hope to have a commercially viable product ready by 2015.
www.waterislife.com

©Brian Gartside



©IdeaPaint

PAINT TURNS WALLS INTO DRY ERASE BOARDS

IdeaPaint is an innovative new product that lets you create a usable, interactive surface on practically any surface in your home, school or office, allowing for the dematerialisation of work spaces. The award-winning whiteboard

paint is now available in South Africa through the Write Co. Available in white, black and clear, IdeaPaint is non-toxic and saves paper and other materials, thereby contributing to a greener working environment.
www.thewritecompany.co.za

World Green Building Week runs from 22-27 September 2014.

www.worldgbc.org

LAUNCH OF 'FIND & FIX' POTHOLES APP

The Johannesburg Road Agency (JRA) has launched a mobile app that enables residents to easily report potholes, faulty traffic signals, and problems with storm water drains, manhole covers and other infrastructure issues. Developed by a local information technology firm Intervate, the new smartphone app forms part of the JRA's turnaround strategy and service delivery drive. The 'Find and Fix' app is freely downloadable and will give the city an accurate location for the defect, complete with GPS coordinates.
www.jra.org.za

TWO CSP PLANTS NEARING COMPLETION

Abengoa, a Spanish multinational, together with its partner, the Industrial Development Corporation, announced that its two concentrated solar power projects, Khi Solar One in Upington and KaXu Solar One in Pofadder, are 80% complete.

KaXu Solar One is a parabolic-trough solar plant with a 100MW capacity, preventing 315 000 tons of CO₂ emissions every year. Khi Solar One is a 50MW tower technology plant being developed in the nearby area. Both projects are part of government's plan to generate up to 17 800MW of renewable power by 2030, reducing the country's dependency on oil and natural gas.

According to Dr Louis van Heerden, general manager of Abengoa Solar South Africa,

some 1000 jobs have been created during its construction, in addition to a further 35 positions that will be required to operate and maintain the plant. An additional 200 direct and indirect jobs will be created in the local community. www.abengoasolar.com

A South African solar energy atlas is in the process of being developed to advance increasingly popular solar photovoltaic and solar thermal technology solutions in the country. The South African Weather Services is constructing twelve solar radiation stations across the country, with six already operational.



WORLD'S LARGEST SOLAR POWER PLANT

Owned by NRG Energy and MidAmerican Energy Holdings, the Agua Caliente solar farm is currently one of the world's biggest photovoltaic plants and has been announced fully operational.

The project, which the US Department of Energy supported through a US\$967 million loan in August 2011, has the capacity to generate 290MW of solar generated power through Yuma County, Arizona. This is enough to power 250 000 American homes. It will also reduce 324 000 tons of CO₂ emissions annually, equivalent to taking almost 70 000 cars off the road.

The plant is fitted with more than five million advanced thin-film cadmium telluride (CdTe) PV modules. These modules generate electricity without releasing any emissions, waste or water, with minimal noise and have a low visual impact. They have the smallest carbon footprint compared to conventional PV technologies. The panels will be recycled after their useful lifespan. www.nrgenergy.com

KENYAN TEA FARM UNVEILS SOLAR PROJECT

Situated on a tea farm in Changoi, Kenya, the 1MW solar plant is claimed to be one of the largest in East Africa and is expected to produce 1600 kW/kW which will help Williamson Tea's energy bills by around a third. Built by British firm Solarcentury, the solar system works together with standby diesel generators when the grid fails, using solar electricity during daylight hours. There are only five other such "solar fuel saver" systems globally. www.solarcentury.com www.williamsontea.com

TWO 75MW SOLAR PLANTS GO ONLINE

The Lesedi and Letsatsi projects, located in the Northern Cape and Free State respectively, have been completed and are fully operational. Each plant supplies 75MW of clean energy to more than 130 000 homes. SolarReserve, a US power project developer, and a consortium that financed both projects signed a 20-year power purchase agreement with Eskom. The Lesedi and Letsatsi projects were selected by the Department of Energy in the first round of bids under the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). www.solarreserve.com



The construction of the 60.8MW Kinangop wind farm in Kenya has commenced, with Aurecon appointed as the main project engineer. The project has reached financial close and commissioning is expected to occur in mid-2015.

LIGHTING THE WAY FOR INDIANS BY 2019

With 400 million Indian citizens unable to access electricity, Indian Prime Minister Narendra Modi plans to harness the power of the sun to enable every home to run at least one light bulb by 2019.

To achieve the five-year goal, government will need the co-operation of state-level administrations, which share control over the power industry, says Narendra Taneja, convener of the energy division of Modi's Bharatiya Janata Party. If successful, the use of solar panels could allow every home to have enough power to run two bulbs, a solar cooker and a television.

No.1 Silo has received the first 6-Star Green Star SA – Office v1 As-Built rating in South Africa.

THE GREEN BUILDING COUNCIL OF TANZANIA (GBCTZ) HAS BEEN ESTABLISHED.

The South African Renewable Energy Council (Sarec) has been formally launched as the umbrella body for the renewable energy sector in SA.

The Water and Sanitation unit of eThekweni Municipality has won the 2014 Stockholm Industry Water Award for its transformative and inclusive approach to providing water and sanitation services. In respecting residents' constitutional right to water, an additional 1.3 million people in the greater Durban area have been connected to piped water and 700 000 have been provided with access to toilets over the last 14 years. The municipality will receive its award in Stockholm on 2 September 2014, during World Water Week.

2013-2014 AFRISAM-SAIA AWARD FINALISTS

South Africa's 15 finalists in the third bi-annual AfriSam-SAIA awards for sustainable architectural projects in the country have been announced. The AfriSam-SAIA award recognises buildings that use an integrated approach to architecture, natural systems and technology. Entries are submitted under two categories: one for built work that has been occupied for two years and the other for works of social importance, including research.



BUILT CATEGORY

- 44 on Grand Central, Midrand (TC Design Architects)
- Alexander Forbes, 115 West Street, Sandton (Paragon Architects)
- Helenvale Multi-Purpose Community Centre, Helenvale (The Matrix Urban Designers and Architects)
- House Jones, Hurlingham (Era Architects)
- Koidu Mine, Sierra Leone (Collis and Associates)
- Lakeside 3, Centurion (AMA Architects)

- Monaghan Farm, Laneria (Claude Bailey & Architecture Design)
- New Architecture Wing at the Tshwane University of Technology, Pretoria (Crafford & Crafford)
- SAPS 10111 Radio Control Centre, Korsten (The Matrix Urban Designers and Architects)
- Seed Library, Alexandra (Architects of Justice)
- Unisa Phase 2, Parow (Michele Sandilands Architects)

RESEARCH CATEGORY

- The GCIS facade solar research project, solar research for innovative technologists (S and A Architects (Pty) Ltd)
 - Promoting the use of sustainably grown plantation timber in South Africa (Collis & Associates)
 - Use of recycled construction waste in concrete (Collis & Associates)
 - Vukuzakhe, Durban (Koop Design)
- www.4tmrw.co.za

©All images courtesy of the architects



©Architecture & Vision

WATER FROM THIN AIR

Conceptualised and designed by the Italian firm Architecture and Vision, the WarkaWater towers is a bamboo, water-collecting structure that helps locals access clean water at minimal cost and impact to the environment.

The 'Warka', as it's more commonly known, was inspired by a native Ethiopian fig tree symbolising fertility and generosity. It is twelve metres high, weighs 80kg and is estimated to collect from 50 up to 100 litres of clean, safe drinking water per day.

The vertical structure consists of nine modules that are installed from the bottom to the top, and can be lifted and fixed in under a week by four people without the need for scaffolding. A special fabric is suspended inside the structure to collect water in the air, which after natural condensation is funnelled down into a

small reservoir at the base of the tower. The triangular frame structure is made of natural materials such as bamboo and can be built by village inhabitants. The Warka must be fixed with tensioning cables to withstand strong winds.

The team recently launched a new updated prototype, WarkaWater2.1, which looks at new and improved ways of construction, assembly, packaging and transportation.

"WarkaWater is designed to provide clean water as well as ensure long-term environmental, financial and social sustainability. Once locals have the necessary know-how, they will be able to teach other villages and communities to build the WarkaWater towers," says architect Arturo Vittori.

www.architectureandvision.com

Hotel Verde was awarded Platinum LEED and Heritage certifications.

AFRICAN UTILITY WEEK AWARD

The City of Cape Town was awarded the African Utility Week award for its quality of electricity and efforts to save water.

Finalists in this category were the eThekweni, Durban and Nelson Mandela Bay municipalities.

In the community project category, global metering giant Itron won top honours for its Water PlayPump Programme at the Relekile Primary School in Kuruman, a dry and arid area of the Kalahari Desert. The PlayPump was built as part of an innovative collaboration with the Ga-Segonyana Municipality. As the children play, the motion of merry-go-rounds on the playground powers the pump, which draws clean water into a 2500-litre storage tank for drinking, washing, cleaning and watering the school's vegetable garden.

The Southern African Power Pool (SAPP) won the African Collaboration Award. Its Zimbabwe-Zambia-Botswana-Namibia interconnector project is the only project in the SAPP that involves four countries.

Durban activist **Desmond D'Sa** was named one of six winners of the 2014 Goldman Environmental Prize.

www.goldmanprize.org