

Editors Column

Welcome to our fourth issue for this year. In this edition, we look at Africa's largest solar farm called the Jasper Solar Farm in South Africa. We look at how France is greening their houses. We look at how other countries are using solar and wind energy and working on becoming carbon neutral. We discuss the position of the International Rhino Foundation and Save the Rhino International. Lastly we look at some environmental events taking place in and around the world.

We welcome your comments and environmental contributions to the Editor:

infor@blackcrystal.co.zw

Thank you and happy reading!



Environmental Consultants
Caring for the environment beyond today

Black Crystal Consulting is one of Zimbabwe's leading reputable companies offering a quality service in environmental and socioeconomic consultancy services. Black Crystal Consulting believes in ***caring for the environment beyond today*** to ensure that biodiversity is maintained and that natural resources are not depleted for the next generation.

Black Crystal Consulting (Pvt) Ltd

1 Fairbairn Drive

Mount Pleasant

Harare

Phone: +263 4 334 361/ 307 466/ 307 458.

Mobile: +263 779 394 17

Africa's largest solar farm now fully operational

The Jasper solar farm, located near Kimberley in South Africa, is now the continent's largest solar power project. Construction was completed in October 2014, and it is now fully operational. With a rated capacity of 96 megawatts, Jasper will produce about 180,000 megawatt-hours of clean energy annually for South African residents, enough to power up to 80,000 homes.

What makes this even better is that Jasper won't stay the biggest solar project for long. In the same area, in South Africa, near the 75-megawatt Lesedi project that came online last May, a 100-megawatt concentrated solar thermal power project called Redstone is also under construction. The Jasper Project generated about 1 million man-hours of paid work during construction, peaking at over 800 on-site construction jobs. South Africa has a goal of having 18 gigawatts of renewable energy by 2030, so projects like this are definitely steps in the right direction. If there's one thing that South Africa has lots of, it's sunlight as does Zimbabwe. 45% of the total project value was spent on "local content" to help increase the positive economic impact on the area. The project was developed by a consortium consisting of Solar Reserve, the Kensani Group (an experienced empowerment

investment player in South Africa), and Intikon Energy (a South African developer of renewable energy projects).



Financing came from local and international sources, including Google and the Public Investment Corporation Intikon Energy, Kensani Capital Investments, the PEACE Humansrus Community Trust, and Solar Reserve with Rand Merchant Bank.



By Michael Graham Richard. Source: [TreeHugger](#)

You are invited to attend The KooVha Ecofest 2015

Friday, September 4, 2015 12:00 PM until Saturday, September 5, 2015 11:30 PM

KooVha Ecofest is a 2 day festival of flavour, set in the scenic mountain region of Nyanga at the KooVha Cidery. It's a celebration of nature's purity and variety, focusing on organic cuisine, craft beer, fresh natural ciders and delicious treats made with indigenous flora. The purity extends to the music (live bands and vinyl only) and the display of original art. Proceeds from the festival help to

support the Nyanga Research Station that is key to the future success of local fruit growers and the establishment of nutritional centres of excellence (eco-villages) that educate children and adults on the benefits of indigenous GMO free wholesome foods to healthy, sustainable living. KooVha Cidery, Juliasdale, Nyanga. The cidery is 700 metres from Montclair Hotel (on your right if you are coming from Harare/Mutare Rd). For more information please follow the link below:

Source: <http://us4.campaign-archive1.com/?u=3c77b2de31674554d5de1a83c&id=915e9ee59f&e=2b1fb660c2>

Joint Statement by the International Rhino Foundation and Save the Rhino International

The rhino poaching crisis has given rise to a plethora of suggestions for how to tackle the problem. One of these is the proposed manufacture of synthetic rhino horn by various companies. But will the manufacture and sale of synthetic horn mean that fewer rhinos are poached? Or will it expand the market for such products, complicate law-enforcement, and lead to more rhino killings? Companies are proposing to manufacture and sell synthetic rhino horn and there are counter-claims that synthetic horn will do nothing to drive down the demand for real rhino horn. One such company is Rhinoceros Horn LLC, which in December 2012 planned to fund the marketing of a new, ethically sourced keratin protein product via the crowd-funding site, IndieGoGo.com.

How are these companies proposing to manufacture synthetic horn?

Rhinoceros Horn LLC proposes, "We've teamed up with the world's leading developer of keratin products, Keroplast Technologies, and using Replicine™ Functional Keratin® have produced a keratin protein powder that is biologically identical to the keratin from rhino horn. But unlike real rhino horn, Replicine™ Functional Keratin® is sustainably produced with no harm to animals and is proven in peer review medical publications to provide health benefits." Dr Rob Kelly, Chief Scientific Officer of Keroplast Technologies added "our Replicine™ Functional

Keratin® technology allows us to isolate particular keratin protein fractions, including pure intact keratin intermediate filament proteins. This is the exact type of keratin that makes up rhino horn provided in an identical manner to how people currently use it, satisfying this market demand in an ethical and sustainable way. Replicine™ Functional Keratin® is the basis of a range of health care and personal products all backed by strong scientific evidence."



How close will this synthetic rhino horn be to the real thing?

Rhinoceros Horn LLC states that "Our product is biologically identical to rhino horn. How is this possible? Well, rhino horn is made of keratin protein. There are different types of keratin protein. Our product is a pure intermediate filament keratin protein, which is the exact keratin that rhino horn is comprised of. The only difference lies in the amino acids that make up our product (amino acids make proteins). The amino acids in our product are bioactive, meaning they can interact with the human body and give health benefits. For example, keratin can be used in skincare, hair-care and wound care products. (Our partner, Keraplast specializes in using keratin protein in such products). The rhino horn has amino acids that are not bioactive. This makes sense because their horns are for defense and foraging, and nothing else. Other than this

difference, the two keratin protein powders are identical in every possible way: in composition, texture, smell, taste, etc."

How will this synthetic rhino horn be marketed and to whom?

It's not clear whether the companies have resolved which market they are targeting: those who wish to buy a whole rhino horn, primarily to demonstrate their wealth and status such as the market now in place in Vietnam; or those who believe in the so-called medicinal properties of rhino horn, which is bought in smaller pieces or sold as powder, such as the market we see in China. Interviews with the companies suggest they hope to target both markets.

Both the International Rhino foundation and Save the Rhino International are opposed to the development, marketing and sale of synthetic rhino horn.

- Selling synthetic horn does not reduce the demand for rhino horn or dispel the myths around rhino horn and could indeed lead to more poaching because it increases demand for "the real thing"
- More than 90% of "rhino horns" in circulation are fake (mostly carved from buffalo horn or wood), but poaching rates continue to rise annually
- Synthetic horn could give credence to the notion that rhino horn has medicinal value, which is not supported by science
- Users buy from trusted sources and value "the real thing"
- The availability of legal synthetic horn could normalize or remove the stigma from buying illegal real horn
- It will take time to develop synthetic horn and meanwhile the poaching crisis continues
- How can consumers and law enforcement officials distinguish between legal synthetic horn that looks real, and illegal real horn?
- Companies benefitting from making synthetic horn have shown very little commitment to use their profits to help the core problem of rhino poaching; besides which, those profits would meet only a tiny fraction of

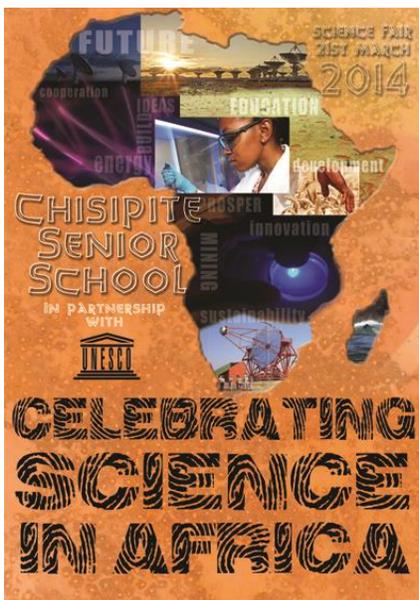
the total rhino protection costs that would remain to be met as long as demand reduction campaigns falter, as they would with the marketing of synthetic horn

- Finally, the manufacture / marketing / sale of synthetic horn diverts funds and attention from the real problem: unsustainable levels of rhino poaching

Read the full article on: https://www.savetherhino.org/rhino_info/thorny_issues/synthetic_rhino_horn_will_it_save_the_rhino

Science for the 21st Century

Black Crystal would like to congratulate the winners of the 2015 Chisipite Science Fair. The annual competition is open to the lower and upper 6 Forms who have to undertake a research project and present it in the Science laboratory with working models and Forms 3 and 4 who have to compile an educational poster. This theme this year was 'Science for the 21st Century'. Participating schools included: Alan Wilson Senior School, Prince Edward Senior School, St John's College, Oriel Girls, Oriel Boys, Hellenic International Academy, St Mary's Chitungwiza, St John's High School and Chisipite Senior School. Mrs. Waterworth, one of our Senior Consultants at Black Crystal was one of the judges along with Dr M Djordjevic, Ms C Dewy, Ms E Grotto to name a few.



The judges enjoyed visiting some very innovative and interesting exhibits which included: robotics, hover

bikes/cars, smart watches, energy conservation, harnessing water, adaptive citric cell, biotechnology, genetic engineering, 3D printers, busting nutritional myths, I-agriculture, energy saving light systems, medicinal Moringa, paper speaker, Reuben's Tube and biodegradable plastic.



The winners were as follows:

Poster Section - 1st place was entitled 'Genetic Engineering' by Michelle Mawvera (Form 3) Chisipite School, 2nd place was 'Harnessing Water' by Oriel Girls School.



Research projects – 1st place was 'Stem Cells' by Chisipite Senior School, 2nd place was 'Ion Engine' by Chisipite Senior School and 3rd place was a project on 'Biofuel'. A commendation was presented to Aneusa Musondo and Stacey Reeds team. Black Crystal would

also like to thank Mrs. S Mahachi, Chemistry and Physics Teacher at Chisipite Girls Senior School who organizes the annual fair, for all her hard work, dedication to the sciences and inspiring students, especially young girls, to become scientists. Please encourage your school to participate in the 2016 Science Fair by contacting Mrs Mahachi on e-mail: susan.mahachi@yahoo.com.

Did you know!!!

Solar energy is a completely free source of energy and it is found in abundance. Though the sun is 90 million miles from the earth, it takes less than 10 minutes for light to travel from that distance. 173,000 terawatts of solar energy strikes the Earth continuously. That's more than 10,000 times the world's total energy use. Solar energy can also be used for making potable water from brackish or saline water. It can also treat waste water without using electricity or chemicals,

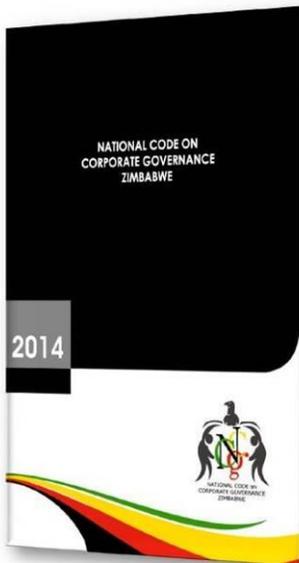
Green Roofs

Rooftops on new buildings built in commercial zones in France must either be partially covered in plants or solar panels to generate electricity, under a law recently approved. 'Green roofs' have many advantages: they help reduce the amount of energy needed to heat a building in winter and cooling it in summer. They also retain rainwater, thus helping reduce problems with runoff, while encouraging biodiversity and providing birds a place to nest in the urban jungle. .



Get on Board with your copy of the
National Code of Corporate Governance

You can purchase a copy for \$20 from:-



Zimbabwe Leadership Forum (ZIMLEF)
10 Leander Road
Greendale
Harare
Tel: +263 (4) 487061 or 485763
Cell: +263 778 034477

Institute of Directors Zimbabwe
1 Grantchester Close
Mount Pleasant
Harare
Tel: +263 4 301136/866 or 369526/7

Standards Association of Zimbabwe
Northridge Park, Northend Close
Borrowdale
Tel: +263 4 882017-9

Copyright © National Code on Corporate Governance

All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, except in the case of brief quotations embodied in critical reviews and certain other non commercial uses permitted by copyright law.

Please note that any infringement thereof will attract both civil and criminal liability.
For queries please contact the Secretariat on:

10 Leander Road, Greendale, Harare

In addition to this, green roofs reduce smog and improve air quality, one finds that noise levels are low. Reduced energy demand is an advantage with green roofs, and aesthetics is improved as there is appreciation of beauty because green roofs reflect more on the beauty of nature. Smog is reduced while air quality is improved making the home a more habitable and healthier environment for people to live in. Green roofs also provide green space, this brings to light the beauty of nature and the environment. Furthermore, Green roofs benefit the environment by preventing combined sewer overflow and reducing the impact of carbon monoxide, they remove nitrogen pollution from the rain and neutralize acid rain effect. One more thing about green roofs for the environment: they provide habitat for wildlife. Green roofs are popular in Germany and Australia, and Canada's city of Toronto adopted a by-law in 2009 mandating them in industrial and residential buildings.

Source: The Guardian, UK

Carbon Neutral Festival

Sydney Opera House, Australia will be carbon neutral for the 10 nights of Vivid LIVE, the largest festival of its kind in the world – an achievement made possible through a number of green initiatives that will reduce the environmental impact of the annual contemporary music event. To be carbon neutral is to balance the amount of carbon dioxide released into the atmosphere by a particular activity such as a festival with an equal amount of carbon offsets. So to be considered carbon neutral, an individual or organization must reduce its carbon footprint to zero.

The Opera House is taking a number of steps to reduce the carbon footprint of Vivid LIVE:

- All electricity used for Vivid LIVE 2015 events – including the iconic Lighting of the Sails – will be powered by 100% Green Power from accredited renewable sources
- Fuel-efficient transport will be used for artist transfers as available
- Surplus food from events and artist catering will be donated to the food-rescue charity OzHarvest
- 200 artists and crew will receive reusable water bottles rather than bottled water – saving an estimated 6,000 plastic water bottles across the event
- Switching to electronic marketing where possible to reduce printed materials.

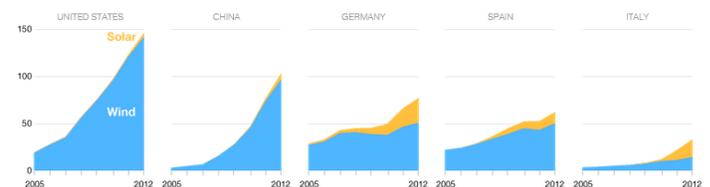
Alongside these initiatives, the Opera House has also committed to tracking and offsetting all remaining carbon emissions, including flights for performers as well as all other artist transport, catering, hotel accommodation, waste and paper. A total of 1,000 tonnes of carbon dioxide are expected to be offset during the event – equivalent to the average annual emissions of 92 Australian households. This will be achieved by investing in accredited projects and through transparent reporting. All carbon calculations and offsetting will be externally verified and reported via the Vivid LIVE website in line with National Carbon Offset Standard requirements. Sydney Opera House Manager Naomi Martin said: “Whether you’re coming down to enjoy the incredible Lighting the

Sails projections or taking a front row seat at a show, it’s great that patrons and festival goers will know that Vivid LIVE is being powered entirely by renewable energy. This is our greenest year yet and the first time our team has successfully made Vivid LIVE fully carbon neutral – but it’s just the beginning. This is a commitment we will build on as we continue to set a new standard in sustainability.”

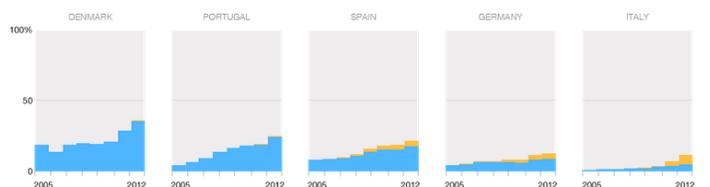
Wind and Solar Energy

Across the globe, renewable energy is expanding faster than fossil fuels. It’s even taking off in countries that may surprise you. “Once again in 2014, renewables made up nearly half of the net power capacity added worldwide,” says Achim Steiner, Executive Director of the United Nations Environment Programme. After a two-year dip, they’re attracting more investment. Hydropower generates the largest share of renewable energy, followed by wind and biomass, but solar is growing the fastest.

Top five countries in net electricity generation from solar and wind 2005-2012, in billion kilowatt hours



Top five countries in percentage of electricity generation from solar and wind 2005-2012



Note: Countries shown with a minimum population greater than 10 M.
 ND: NAEP
 SOURCE: UNITED STATES ENERGY INFORMATION ADMINISTRATION

Some countries are obvious leaders. The U.S. and China had the greatest installed capacity for producing power from wind in the last two years, while Germany and China had the most from solar panels, according to the U.S. Department of Energy and Ren21, an international non-profit group. Yet five smaller or developing countries are also showing their green potential. **Italy**, famous for its Tuscan sun, had the third-largest power capacity from solar panels, and it generated the highest share of its electricity from the sun. **Spain** was able to generate the most electricity from concentrated solar power, which uses

mirrors to focus a large amount of sunlight onto a small area. The U.S. was second, followed by the United Arab Emirates, India, and Algeria.

Denmark, known for iconic windmills off its coast, generated a larger share of its electricity from wind than any other country in 2012. Portugal and Spain, two other small coastal European countries, ranked second and third. **India**, where one-fourth of the people lack access to electricity, had the world's fifth largest wind capacity by the end of last year, according to the Global Wind Energy Council. Spain ranked fourth. **Japan**, which has been moving away from nuclear power after the 2011 meltdown at its Fukushima Daiichi plant, is turning to the sun. Last year, after China, it added the second-largest amount of solar capacity to its power grid, reports the International Energy Agency.



Picture of wind mills in Flevoland, Netherlands

Flanked by windmills, this dike protects farmland that is almost entirely below sea level in Flevoland, the Netherlands. Noting the plunge in solar prices in recent years, the IEA says solar could become the world's largest source of electricity by mid-century, providing about one-fourth of its power. In 2013, solar barely accounted for 1 percent.

"By 2040, developing economies will have spent \$1 trillion on small PV systems, in many cases bringing electricity for the first time to remote villages," says Jenny Chase, chief solar analyst at Bloomberg New Energy Finance. Her

group forecasts that by 2030, new onshore wind and solar energy will be cheaper than new or existing fossil fuel plants. The story is part of a special series that explores energy issues and it something that we should seriously rise of the great energy challenge and consider implementing the same in Zimbabwe. Source:<http://news.nationalgeographic.com/energy/2015/07/150714-surprising-countries-leading-way-solar-wind/>

Nothing Wasted

JCI CITY ZIMBABWE PRESENTS
NOTHING WASTED
Ecofashion & Arts Exhibition
A project impact and launch event.

Zimbabwe German Society
Friday 3 July 2015
1800hrs - 2200hrs
David + SoProfound + Thelma + GGB + Brad + Dj Eve
Upcoming Designers & Artists

NOTHING WASTED
Ecofashion & Arts Exhibition

\$5

Junior Chamber International (JCI) is a global network for young people in their 20s and 30s present in more than 100 countries and has almost 200,000 members across the world. Their thrust is meeting on a regular basis for fun and friendship, while running many inspiring events and projects with their members. One such event was Nothing Wasted which was hosted together with the Zimbabwe German Society in Harare on the 3rd of July 2015. The purpose of the event was to bring awareness of waste management, distribute bins to 100 schools. If you would

like to inquire more about this, you can contact Miss Tusso Jumbe, JCI City Zimbabwe Project Leader Impact 100 on 0774164689 or tussoj@gmail.com

Keeping The Ban on Bee-Killing Pesticides

As thoughts turn to warm weather and gardening, it's a good time to consider planting, flowering trees, shrubs and other plants that are attractive to bees, butterflies and other pollinators. Most people think of bees as a summertime nuisance, but these small but hardworking insects usually make it possible for many of our favorite foods to reach our tables from apples, to almonds to pumpkins we have bees to thank. Bees are known for producing honey and while that industry is certainly an essential one, it's not the only reason why we need bees, bees are essential to the human food supply.



Pollinators strongly influence ecological relationships, ecosystem conservation and stability genetic variation in the plant community, floral diversity specialization and evolution. Bees play an important, but little recognized role in most terrestrial ecosystems where there is green vegetation cover for at least 3 to 4 months each year. These small insects are under threat due to the use of pesticides. Neonicotinoid (NNI) pesticides are used to protect crop seeds from damage caused by pests. They are most commonly used on oil seed rape. However scientists and campaigners say neonicotinoids have a greater environmental impact, both for plants and animals. Ironically, the loss of bees is considered potentially

damaging to agriculture because of the role they play in pollinating other plants. Chemicals are absorbed into the plant making all parts of it – including pollen and nectar – poisonous to insects. Bee populations have declined across Europe in recent years. NNI were introduced into farming in the early 1990s, but became commonly used in the 2000s. The European Commission announced an EU-wide ban on the substances in April 2013 which is set to expire next year. Britain agreed to comply with the ruling, but said it didn't agree with the science behind the decision. What is the problem? Concern has focussed on honey bees, whose population has declined by around 25 per cent in recent years. Numerous studies have directly linked bee death to the use of neonicotinoid – though not everyone is convinced. Critics say too many tests are carried out in unnatural laboratory conditions, and that their results are therefore not reliable. They also point to loss of habitat and changing land use as reasons why numbers are dropping. Researchers claim they interfere with bees' brains, limiting their abilities to learn and remember what food they should be eating. Some experiments link the pesticide to a form of bee epilepsy, in addition to reduced breeding activity.

With this in mind, there is one organisation in the United Kingdom petitioning for Britain not to allow any exemptions to the European ban on bee-killing pesticides, 38 Degrees, which is one of the UK's biggest campaigning communities, with over 2.5 million members who share a desire for a more progressive, fairer, and a better society.



<https://speakout.38degrees.org.uk/campaigns/ban-bee-killing-pesticides-for-good-937d4563-7694-41a8-a642-65e6b0e51453>