

Editors Column

Compliments of the new season. Welcome to our first edition for the year 2017. 2016 was by far the hottest year (in terms of temperature), and we look back on that aspect of climate change. We have two interesting articles on e-waste and an article on natural capital. In February, as we celebrate the Worlds Wetlands Day, we discuss the importance of wetlands. We also look at the Sunshine Zimbabwe Project, an organization that is empowering intellectually challenged individuals and how they are producing recycled products.

We also have a YouTube link to an interesting video on Midway Island, also known as Plastic Island due to the extent of plastic that is polluting the island. We also have a topical article looking at landfills and the Pomona Dumpsite.

We welcome your comments and environmental contributions to the Editor on 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.

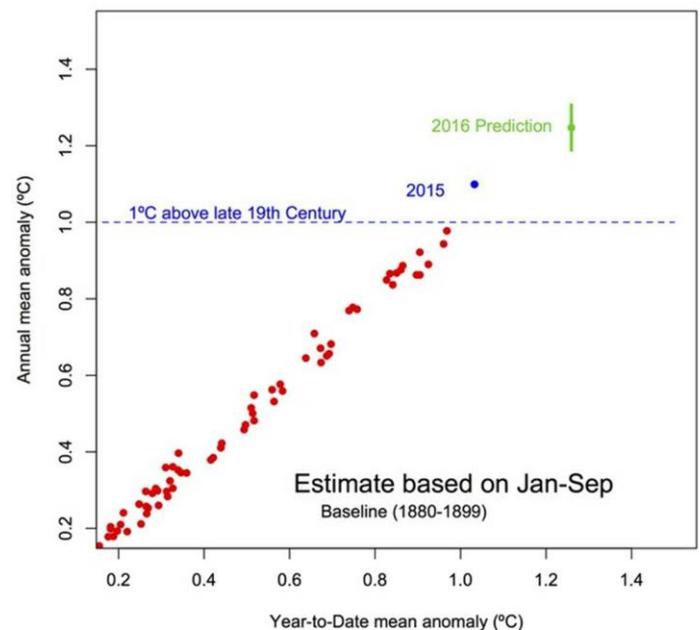
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2016 – The Hottest Year on Record

2016 was the hottest year on record, according to NASA and the United Nations. The UN reported that this was a new high for the third year in a row. It means 16 of the 17 hottest years on record have been in this century. The scorching temperatures around the world, and the extreme weather they drive, mean the impacts of climate change on people are coming sooner and with more ferocity than expected, according to scientists. Data shows September was the warmest in modern temperature monitoring following months of record-breaking anomalies in 2016. NASA declared 2016 to be the hottest yet recorded, after September narrowly turned out the warmest in modern temperature monitoring. September was 0.91°C above the average temperature for that time of year from 1951 to 1980, the benchmark used for measuring rises.

The new findings follow record-breaking monthly anomalies throughout 2016 year, leading NASA to believe that because of the highs reported so far, 2016 will take the crown as warmest in the 136 years of modern data-keeping.

Predicting the 2016 GISTEMP LOTI mean anomaly



Dr Gavin Schmidt, director of NASA's Goddard Institute for Space Studies said 2016 was brought about in part by a strong El Niño event, a Pacific weather system that can affect sea and air temperatures around the world, but also by strong underlying trends. When 2015's status was

confirmed, he said that it would have been the warmest year even without the El Niño. The El Niño weather phenomenon helped push temperatures even higher in early 2016 but the global warming caused by the greenhouse gas emissions from human activities remains the strongest factor. Extreme weather and climate related events have damaged farming and food security, affecting more than 60 million people, according to the UN Food and Agriculture Organization. The level of CO₂ in the atmosphere has also broken records in 2016, with May seeing the highest monthly value yet - 407.7 ppm - at Mauna Loa, in Hawaii.

A new temperature record was set for 2016 and confirms the longer term trends of climate change. This in turn will help scientists to counter claims from global warming sceptics that the rise in global temperatures has "paused" and therefore that climate change is not a threat. Other agencies, including the UK's Met Office, the US National Oceanic and Atmospheric Administration and Japan's Meteorological Agency, also published temperature estimates. Also closely watched is the World Meteorological Organisation, which in July 2016 made a prediction that 2016 would be the hottest, based on data available to that date.

Sources:

- <https://www.theguardian.com/environment/2016/oct/18/2016-locked-into-being-hottest-year-on-record-nasa-says>
- <https://www.theguardian.com/environment/2016/nov/14/2016-will-be-the-hottest-year-on-record-un-says>

Black Crystal Social Responsibility

As part of its Social Responsibility programme Black Crystal donated tee shirts and caps for the Zimbabwe team represented by Chinhoyi University of Technology when they participated in the Enactus World Cup which is the world's largest business innovation competition for social impact. It is a global competition where students develop and implement innovative and sustainable solutions to some of the world's biggest challenges. Zimbabwe was one of the top 8 teams in the 2016 Enactus year.

Important Information & Facts about E-Waste Recycling

What is E-Waste?

All E-waste contains hazardous materials such as lead, PVC, hydrochloric acid, barium, cadmium, mercury, beryllium, selenium. A considerable amount of E-waste is ending up in landfill, this poses a serious threat to the environment in many ways as the waste leaches into ground water systems and soil when exposed to the elements. This increases the toxicity of the underground water and even after filtration can cause serious health problems. We have the power to choose, to make a contribution towards a greener Zimbabwe. Your contribution DOES count and now you have at least two choices to discard your E-waste in a safe, responsible and environmental friendly manner.



Garbage Gobblers?

"Garbage Gobblers" are a licenced and registered waste removal and collection facility. From there E-waste is transported to South Africa via accredited transporting company licenced to carry hazardous materials. Garbage Gobblers have partnered with the biggest Electronic Waste Recycling centre in Southern Africa. The E-waste is sorted and stripped into various components – plastic metal hard drives etc. From there each component is recycled according to the material it is composed of. Some components are not recycled, for instance LCD screens as they are deemed hazardous due to the heavy metal

content. These are treated and sent to a designated reputable hazardous landfill.

Why should I Recycle my E-waste?

As there is currently no recycling conversion plant or collection centre in Zimbabwe all electronic goods are simply and plainly just being dumped. The Ministry of ICT is currently working on an E-waste policy due to be released towards the end of 2016 whereby consumers/retailers/manufactures will be required to actively participate in making the IT industry 'greener'. Adopting Garbage Gobblers' philosophy and supporting its operation, not only elevates your business image to show your business is actively involved and promoting greener habits; but it is the right action to take.

What types of E-waste are accepted and what are my options of disposal?

The following E-waste is accepted: Laptops, monitors, CPU's, cellphones, keyboards, printers, mice and desktops. Garbage Gobblers does not take monitors or screens that are completely shattered into pieces and accept toner cartridges individually – however if encapsulated within the printer this is fine. In terms of batteries: they take UPS's, laptops and batteries that have been used for solar purposes. Unfortunately, not torch batteries at the moment. Garbage Gobblers is able to collect should your company or organisation is based within Harare. The collection fee is anything from \$5 upwards dependent on the size of your stockpile of E-waste.

E-Waste bins: (personal branding available)



The bins are available in the following sizes and prices:

1 000Lt	:	\$250
200Lt	:	\$135
70Lt	:	\$40

E-waste clearance: \$5 for 70/200lt bin collection and \$10 for the 1000Lt bin collection.

Garbage Gobblers is working together with the Ministry of ICT, EMA and the City of Harare to take the IT industry towards a greener tomorrow.

Garbage Gobblers can be contacted on the following:

313 Herbert Chitepo Avenue

0772 570 223

Email: lauren@recycling.co.zw

Solving the electronic scrap challenge in Central Africa



Background:

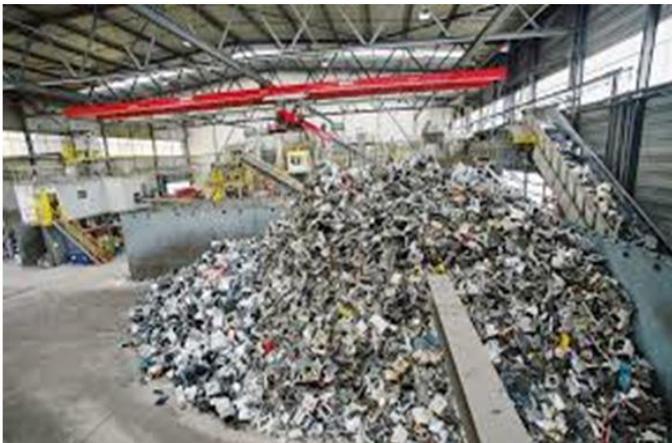
With the increasing exploitation of the natural resources of our planet, the recycling of "e-scrap is important for future generations. E-scrap includes any discarded, non-functional or obsolete electronic storage devices including printers, scanners, fax machines, mobile (cell) phones, televisions sets and screens, computer monitors and key boards, central processing units, external hard drives, server equipment, lap top computers, MP3 players, digital and video cameras, tablets, uninterrupted power supply units, cables and chargers as well as medical and military electronic equipment and some white goods.



The Enviroserve Group has the capability to responsibly dispose of e-scrap and therefore makes an important

contribution to environmental protection. Enviroserve Central Africa has representative offices in Zimbabwe, Rwanda and Zambia with a head office (Enviroserve Services LLC (Enviroserve Dubai) based in Dubai, United Arab Emirates (“UAE”).

Enviroserve Dubai is the largest e-scrap destruction and recycling specialist in the UAE and provides the closest integrated e-scrap recycling facility to Central Africa. It was established in 2006, and has recycled more than 2 million units of electronic material to date.



The dangers of untreated e-scrap:

On average, electronic equipment contains over 40 different materials including many hazardous ones (e.g. lead, mercury and (airborne) cadmium and beryllium). If the e-scrap is not properly processed or dumped in to land fills, as is currently the case in Central Africa, the toxic materials eventually permeate the air and leach into ground water systems, which may result in adverse health issues in the local population, affecting the heart, liver, kidneys and lungs (inter alia).

The collection and segregation process at Enviroserve Central Africa:

Enviroserve Central Africa accepts delivery of e-scrap to its EMA licensed factory in Msasa, Harare or alternatively organizes collection from the client's premises. In time, special e-scrap collection points will be established in specially marked green bins in secure public areas such as supermarkets, post offices and petrol stations. At the Enviroserve factory in Harare, Zimbabwe the e-scrap is segregated and sorted into the various entities of whole

units as well as plastic, metal and circuit boards which contain the toxic and other materials – the plastic, glass and circuit boards are shipped to Enviroserve in Dubai for re-cycling whilst the scrap metal is re-used locally. Data wiping and destruction services are also available on request.

An internationally recognized Enviroserve Green Certificate available – this acknowledges that the identified e-scrap has been recycled at an integrated facility that is ISO 9001, 14001 and 18001 certified and part of the UN Global Compact and Carbon Disclosure Project.

The advantages of responsibly disposing of e-scrap via Enviroserve:

- Environmentally friendly compliant solution to the disposal of e-scrap at minimal or no cost.
- Internationally recognised re-cycling certification for Safety, Health and Environmental compliancy purposes.
- Frees up client storage space.
- Possible release of value from obsolete electronic stock.

For more information of the services provided by Enviroserve Central Africa, please contact us in Harare, Zimbabwe on:

graeme@enviroserve.ae and +263 772 237 616

lauren@enviroserve.ae and + 263 772 570 223

Midway – Plastic Island

Midway Island is one of the most remote places on the planet, yet it is one of the hardest hit by pollution in the world. Former United States President, President Barack Obama declared the National Wildlife Area, including Midway Island, the largest protected area in the United States though it is too late for parts of it.

CNN's Nick Paton Walsh traveled to Midway Atoll in the Pacific Ocean to investigate how the plastic we throw away everyday enters the food chain and possibly, our bodies. To know more about Midway Island, watch the video on Youtube using the link below:

<https://m.youtube.com/watch?v=IsJqMmuFWO4>

Sunshine Zimbabwe Project empowering intellectually challenged individuals in the community



Sunshine Zimbabwe Project is a vocational Centre for adults (16+years) with remedial needs and learning difficulties. It was established in 2011 with a view to helping school leavers take part in productive post school activities by providing education and life skills training in various forms. The project is a registered division of Silver Linings Trust; however, fundraising and management are independently run by a separate board. Many people with intellectual challenges are ostracized in society due to their limited cognitive abilities, but at Sunshine Zimbabwe Project, we concentrate on their abilities not their disabilities. Our curriculum offers the development and implementation of individual education programmes including the teaching of basic skills in literacy and numeracy through the Distar programme; as well as a comprehensive life skills programme promoting personal, social and emotional development. For help with gross motor skills, we have bocce (a special Olympic sport), tennis, horse riding, yoga, golf and our members enjoy art and music since they are therapeutic activities.



To complement the whole programme, our members take part in exciting cooking sessions and some gardening. Sunshine Zimbabwe Project advocates for the promotion of appropriate work ethics culminating in work experience within the community or on site at the Centre. To add to all this, we have different income generating projects going which include: the manufacture of nutritious Waggles Pet Biscuits, delicious Sunshine Homemade foods as well as arts and crafts made from recycled material from the community. Our crafts section has grown tremendously and we pay close attention to incorporating recycled goods. We mainly use recycled toilet cleaner bottles and PET bottles to create our products and our dustbins and chandeliers have become an iconic Sunshine design. Furthermore, our carpentry section also puts to good use recycled wooden pallets to make chicken houses, wooden workbenches and firewood crates amongst many things.



In January 2016, we started offering City and Guilds (UK) qualifications and are an approved Centre registered with the international body as well as the Ministry of Higher and Tertiary Education. Our students' learning is slower than others, therefore the courses we offer take into account their different learning abilities and skills whilst providing them with an opportunity to achieve an internationally recognized certificate - all this with the ultimate aim of assisting them to become productive members of society.

. Many people with cognitive and intellectual challenges do much better than people expect – so everyone in society should give them a chance. “Put a little sunshine into someone’s life”.

For further information on the recycled products , training and activities on offer, please visit their Facebook page or email on sunshineprojectzim11@gmail.com or sunshineprojectzim28@gmail.com or you can call on +263-774 456 192/+263-779 878 681.

Landfills and Pomona Dump

Landfills are places that are specifically chosen according to strict planning guidelines to become a site where rubbish is deposited. Landfills have to be managed carefully so that they cause low or no pollution to the environment. Typically, some recyclables and organic materials are either removed before they reach the site or sorted on site. The rubbish is put into an impermeable lined section of the pit; the lining is to prevent the waste from contaminating the soil and underground water. Each day the section is covered with soil that caps the waste so as not to attract flies and scavengers such as birds, rodents and so on and also to reduce any bad odour. But, if the site is not strictly managed then many environmental hazards can occur such as ground water and soil pollution from seepage from the bottom of an unlined facility as well as the release of air pollution in the form of carbon monoxide which is a known greenhouse gas. Therefore, if the facility is not managed and sited properly the environmental and health impacts can be serious.



Photo credit: www.hararenews.co.zw

The Pomona landfill site, as many would have seen and heard about, set alight in October last year. This happens annually due to the intense heat that builds up inside the landfill, combined with the flammable methane gas it emits. Consequently the landfill caused many environmental health and safety risks when it was burning. The fire's toxic plume could be seen for kilometres and local residents, especially the young and elderly and those with breathing problems such as asthma, were instructed to evacuate their homes in case they became ill after inhaling the polluted air. In addition to this, when it is

not on fire the landfill has been polluting the environment for many years because it is an unlined facility.

The Pomona dump is in many ways a contamination of our environment and society. It is too close to residential areas and is now too vast to easily remove. Even if the site was closed down the rubbish would still remain there contaminating the soil water and air. Harare City Council have plans to create a new lined landfill site complete with an energy plant that turns organic waste into biogas through a biogas digester, this type of facility is already in use in many other countries. The digester is a tank filled with bacteria that break down organic waste and creates biogas that can be used to create electricity and other forms of energy. However, the funding for such a project is much more than the Harare City can manage and so they are seeking outside investment, so unfortunately the plant cannot be expected to be constructed anytime in the near future and more fires and environmental pollution are expected.

But, the amount that goes into landfill sites is directly dependant on the amount that we throw away and there is where you can help, be careful of what you put in your bins. Having a compost heap in your garden to throw your organic waste into prevents that organic waste piling up in the landfills unnecessarily. Recycling and reusing waste can also greatly reduce what ends up in a landfill. For example reuse plastic shopping bags or, better yet, keep a reusable sturdy bag in your car for carrying your shopping. Remember: just one plastic bag takes over 100 years to degrade.

World Wetlands Day 2017

World Wetlands Day is celebrated every year on the 2nd of February. Wetlands are considered to be a natural safeguard against disasters hence the theme for this year: "Wetlands for Disaster Risk Reduction" is certainly very topical with the extreme storms and rains that we are currently receiving. The frequency of disasters worldwide has more than doubled in just 35 years, driven by climate- and weather-related hazards like flooding, tropical cyclones and droughts.

UN Water estimates that 90% of all natural hazards are water-related. And the Intergovernmental Panel on Climate Change (IPCC) predicts even more extreme events going forward. The human toll is tragic: 1.35 million people died as a result of disasters between 1996 and 2015. Low and middle-income countries account for 90% of fatalities. In material terms, weather related disasters caused US\$3.3 trillion in damage between 1980 and 2014.

Defined as land areas that are flooded with water, either seasonally or permanently, wetlands are a natural buffer against disasters. Along the coastline, wetlands act as a natural protective buffer. For example, they helped avoid more than \$625 million in damages from Hurricane Sandy in 2012. Inland, wetlands act as a natural sponge, absorbing and storing excess rainfall and reducing flooding. During the dry season, they release the stored water, delaying the onset of droughts and reducing water shortages. When well managed, wetlands can make communities resilient enough to prepare for, cope with and bounce back from disasters even stronger than before:

1. Preparing/preventing

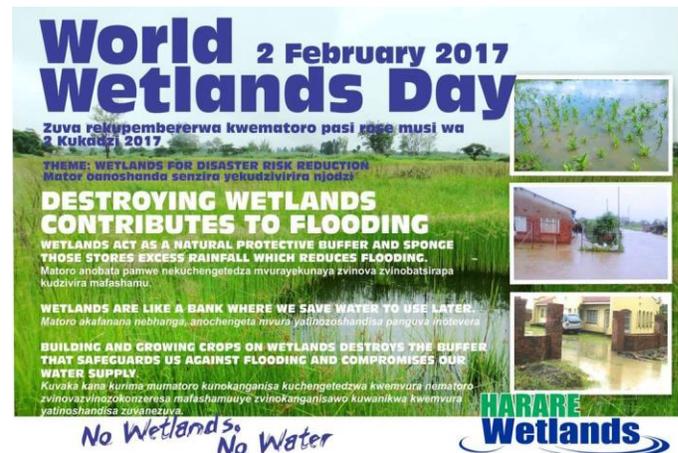
To minimize impact ahead of time, we can designate flood and storm-prone areas as protected wetlands to strengthen nature's own buffer. The Biosphere Reserve of the Saloum Delta in Senegal is an area of estuaries, lakes and marshes. It controls flooding and makes sure that humans, animals and plants have access to fresh water over the entire year. IUCN is working with local communities in Senegal to restore degraded wetlands and to encourage sustainable agriculture, tourism and fishing practices.

2. Coping

When an extreme event hits, healthy wetlands can absorb some of the shock, cushioning the damage in local communities. In Hikkaduwa, Sri Lanka where offshore coral reefs are protected through a marine park, the damage from the 2004 tsunami extended just 50m inland. In nearby Peraliya, where coral mining had degraded the reefs, the damage extended 1.5 km inland.

3. Bouncing back

Wetlands can also speed up the recovery and help to "build back better" after a disaster, acting as natural water filters and nutrient restorers. After a 1999 cyclone that hit Odisha in eastern India, rice paddies that were protected by mangroves recovered their food production much more quickly than croplands without the buffer. Maintaining healthy wetlands and restoring degraded ones means that a community can deal with a disaster even better next time.



Wetlands play a great role in helping to minimize the damage that is caused by heavy rains. Wetlands can reduce flooding by intercepting storm runoff and storing it. Storage of flood water reduces the sharpness of peak water flows (the peak flows generally cause the most damage) and allows a slower discharge of water over a longer period of time. This results in less severe flooding and less flood damage. Wetlands associated with rivers generally provide the most benefit in regards to flood control.

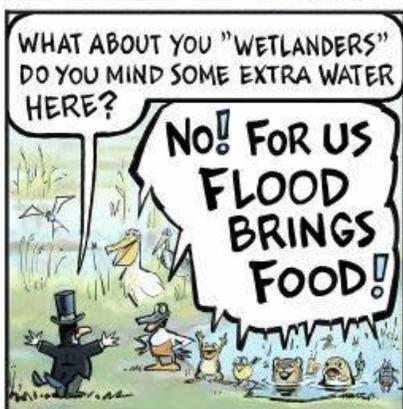
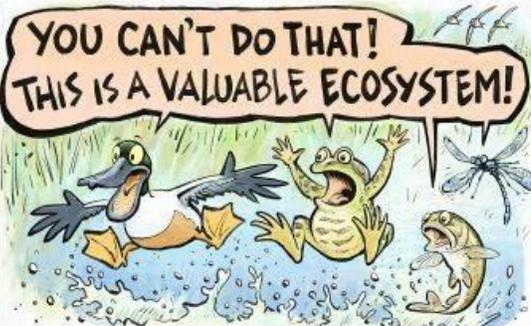
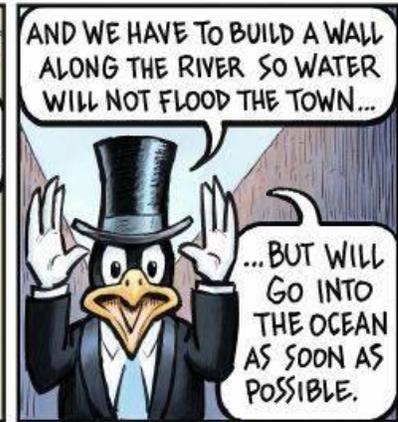
With the current flooding that has been experienced in Zimbabwe since the onset of the new year coupled with the fact that illegal developments are being built too close to streams and in some cases actually on wetlands sadly they are not able to carry out their highly valuable ecosystem functions.

Source: www.worldwetlandsday.org

THE WATER BANK



ramsar.org



www.worldwetlandday.org

Thank You!!!