

Editors Column

We are almost halfway through the year and it's been exciting thus far. In this edition we look at Geo-engineering in depth, a follow up on Genetically Modified Organisms, look at how Zimbabwe will be celebrating World Environment Day 2013, learn about simple solutions to making fridges and mosquito traps, how to take steps to halt climate change and updates on the latest environmental legislation.

We welcome your comments and environmental contributions which you may kindly send to The Editors 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 to come.

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CLIMATE CHANGE: IS THERE A TECHNOLOGICAL SOLUTION TO GLOBAL WARMING?

In a follow up to the article in the last newsletter we consider is geo-engineering: a technique being proposed more frequently by scientists as a good response to combat man made climate change?

The heavy industrial activity of the previous century has caused the earth's climate to warm up making the 20th century the hottest in at least a thousand years. Geo engineering is the possibility of engineering the earth's climate system by large-scale manipulation of the global energy balance with the primary intention of reducing undesired climate change. Tens of thousands of wildfires have been attributed to climate change. Even a 2°C climb in average global temperatures could cause crop failures in some parts of the world. The size of deserts would increase, along with the frequency and intensity of wildfires.

Mitigation geo-engineering techniques include underground storage of carbon dioxide, wind scrubbers to filter carbon dioxide from the air, fertilization of oceans with iron to encourage growth of plankton and enhancing clouds to reflect sunlight. It has been estimated that the mean effect on the earth surface energy balance from a doubling of carbon dioxide could be offset by an increase of 1.5% to 2% in the earth's albedo, i.e. by reflecting additional incoming solar radiation back into space.

The Maldives, in India whose highest point above sea level is only 8 feet, may be the first nation to drown. Many climate scientists say their biggest fear is that warming could melt the Arctic permafrost which stretches from Alaska to Siberia. Melting would release enormous stores of methane, a greenhouse gas nearly 30 times more potent than carbon dioxide. If that happens "it would be game over" said the hydrologist Jane C. S. Long at the Lawrence Livermore National Laboratory.

But is geo engineering really a solution to the problem? Are the true unknown environmental ramifications of the long-term effects of these technologies on our environment known? Have all the potential risks associated with deliberately altering the climate of the earth been identified? Predicting long-term climatic behavior by using computer models is proving difficult, so can the forecasted data be accurate enough to employ geo engineering? The Geneva-based WEF said in its annual Global Risks report that the deployment of

independent, large-scale geo engineering techniques aimed at averting dangerous warming warrants more research because it could lead to an international crisis with unpredictable costs to agriculture, infrastructure and global stability. Carbon Dioxide capture is often viewed as 'soft' geo engineering. The problem is that it requires vast amounts of water and energy to achieve. According to one study, scrubbing all current annual fossil fuel emissions from the air would deprive 53 million people of water.

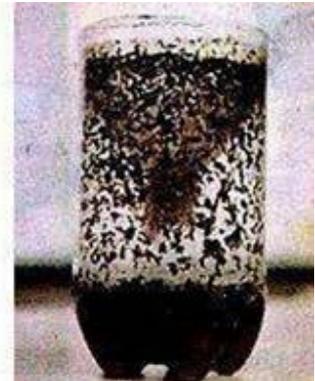
David Keith, a professor of engineering and public policy at Harvard said "when you start to reflect light away from the planet, you can easily imagine a chain of events that may extinguish life on earth. There is only one reason to consider deploying a scheme with even a tiny chance of causing such a catastrophe: if the risks of not deploying it were clearly higher. No one is yet prepared to make such a calculation, but researchers are moving in that direction". To offer guidance, the Intergovernmental Panel on Climate Change has developed a series of scenarios on global warming. One prediction is that by the end of the century the earth's average temperature will rise between 1.1 and 2.9 °C. A more pessimistic projection is a rise of between 2.4 and 6.4 °C—far higher than at any time in recorded history.

Until recently, climate scientists believed that a 6 °C rise, the effects of which would be an undeniable disaster, was unlikely. But new data have changed the minds of many. Late last year, Fatih Birol, the Chief Economist for the International Energy Agency, said that current levels of consumption "put the world perfectly on track for a 6°C rise in temperature. Everybody, even a child, knows this will have catastrophic implications for all of us." So is geo engineering a viable solution? Possibly but it is clear that the choice of methods and further research needs to be carefully considered so as to reduce the risk of further harm to a planet that is already ailing.

Did you know?

Zimbabwe has 9 specially protected mammals, 1 specially protected reptile, 24 specially protected birds and 24 species of specially protected plants.

LEARN TO MAKE A SIMPLE MOSQUITO TRAP



Items needed:

1 Cup Water, 1/4 Cup of Brown Sugar, 1 Tablespoon, Yeast 2-liter plastic bottle (top cut off and inverted inside)

How to: One. Cut the plastic bottle (PET type) in half, storing the neck portion. Mix brown sugar with hot water. Let cool. When cold, pour in the bottom half of the bottle. Add the yeast. No need to mix. It creates carbon dioxide. Place the funnel part, upside down, into the other half of the bottle. Wrap the bottle with something black, minus the top, and put in some corner of your house. In two weeks you will see the amount of mosquitoes that died inside the bottle. In addition to cleaning their homes, breeding sites of mosquitoes, we can use this very useful method in: Schools, Nurseries, Hospitals, homes, ranches, farms, ranches, and nurseries, etc.

DEBATE ON GENETICALLY MODIFIED ORGANISM'S

The Advantages and Disadvantages of Genetically Modified Food: Both Sides of the Debate

The number of countries growing genetically modified crops has increased in recent years causing much debate over the safety of these products. Supporters claim it will feed the world and promote better health and ecological welfare. While others believe the food contains risks to human health. Genetically modified organisms (GMO) include crops, vegetables and fruit that have been created using genetic engineering methods. Scientists combine desirable genes from various species to create new genetically-altered crosses with enhanced nutritional, productive and ecological value.



This differs from traditional breeding in that genetic transference between unrelated species does not occur biologically in nature. The process of combining inter-species genes, which is called recombinant DNA technology, does not have the checks and balances that are imposed by nature in traditional breeding. Because of this there is a risk of genetic instability. This means that no one can make any accurate predictions about the long-term effects of GMOs on human beings and the environment. Extensive testing in this regard is either very expensive or impractical, and there is still a great deal about the process that scientists do not understand. This is the crux of the matter in the ongoing debate of GMOs. Food is an emotional topic. It matters a great deal to all of us. We are what we eat after all. The subject is also of vested interest for the corporations that manufacture genetically modified seeds and agricultural technologies. The arguments are intense and passionate.

Proponents claim that there are many advantages which include the following:

- Crops are more productive and have a larger yield.
- Could potentially offer more nutrition and flavor (although this is debated).
- A possibility that they could eliminate allergy-causing properties in some foods.
- Inbuilt resistance to pests, weeds and disease.
- More capable of thriving in regions with poor soil or adverse climates.
- More environment friendly as they require less herbicides and pesticides.

- Foods are more resistant and stay ripe for longer so they can be shipped long distances or kept on shop shelves for longer periods.
- As more GMO crops can be grown on relatively small parcels of land, they are an answer to feeding growing world populations.

Corporations insist that genetically modified foods are safe and that changing a few genes here and there does not make a crop toxic or dangerous. Why shouldn't we alter nature to meet our needs? There are many natural organisms that human beings have transformed to serve their purpose.

Critics Cite the Dangers of GMO

Scientists can choose which genes to manipulate, but they don't yet know where in the DNA to precisely insert these genes and they have no way of controlling gene expression. Genes don't work in isolation, changing a few could change the whole picture, with unpredictable results. The use of genetically modified food should not be encouraged without research into the risks.

Not labeling is wrong and unfair to the consumers who should have the right to know what they are buying so they can decide for themselves. Even if health safety factors are not an issue, some people might have moral or religious objections. They should not have to eat GMOs if they don't want to. Genetically modified crops pose a risk to food diversity as the plants are much more dominant. Herbicide-resistant and pesticide-resistant crops could give rise to super-weeds and super-pests that would need newer, stronger chemicals to destroy them.

GMO crops cross-pollinate with nearby non-GMO plants and could create ecological problems. If this were to happen with GMO foods containing vaccines, antibiotics, contraceptives and so on, it would very well turn into a human health nightmare. The claim of ending world hunger with GMOs is false. World hunger is not caused by a shortage of food production, but by sheer

mismangement, and lack of access to food brought about by various social, financial and political causes.

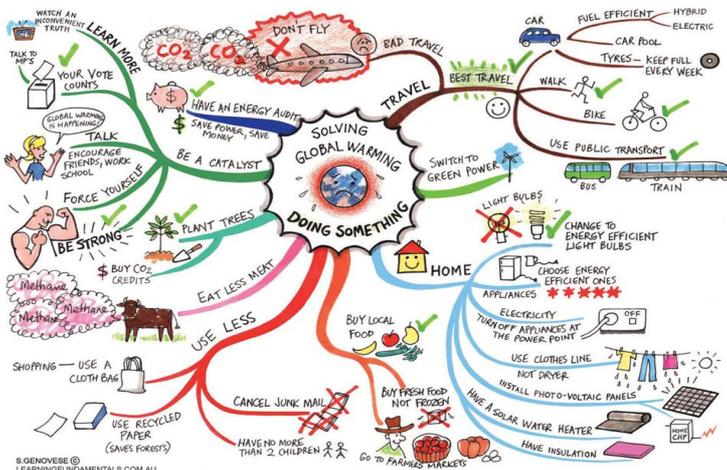
GMO technology companies patent their crops and also engineer crops so that harvested grain germs are incapable of developing. This is not empowering to impoverished Third World farmers, who cannot save seeds for replanting and have to buy expensive seeds from the companies every year. The new technology also interferes with traditional agricultural methods which may be more suited to local environments. GMOs are not the answer to world hunger and health. Instead we should focus on improving organic agricultural practices which are kinder to the earth and healthier for humans.

By Sonal Panse • edited by: Paul Arnold 4/8/2013. There are many more questions about genetically modified food that can only be answered through time, research and experience. What side of the argument do you fall on? Genetically Modified Foods and Organisms: http://www.ornl.gov/sci/techresources/Human_Genome/elsi/gmfood.shtml. Genetically Modified Foods: Harmful or Helpful? <http://www.csa.com/discoveryguides/gmfood/overview.php>

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Global carbon dioxide in atmosphere passes milestone level: How to help reduce Climate Change

With our busy everyday lives, we forget to save the environment as we ought to do everyday with the little things that we can do every single day. Here are some ideas on doing something about saving our planet



DIY TIP - FRIDGE WITHOUT USING ELECTRICITY!

This is incredible idea is an extension of the pottery water cooling vessels used though the millennia. This is Mohammed Bah Abba's Pot-in-pot invention. In northern Nigeria, where Mohammed is from, over 90% of the villages have no electricity. His invention, which he won a Rolex Award for (and \$100,000), is a refrigerator that runs without electricity.

Here's how it works: You take a smaller pot and put it inside a larger pot. Fill the space in between them with wet sand, and cover the top with a wet cloth. When the water evaporates, it pulls the heat out with it, making the inside cold. It's a natural, cheap, easy-to-make refrigerator.

So, instead of perishable foods rotting after only three days, they can last up to three weeks. This has the potential to change their lives and it already has -- there are more girls attending school, for example, as their families no longer need them to sell food in the market. "Brilliant ideas don't need to be difficult to execute: here's a case in point. The technology has been known for centuries, but WASN'T APPLIED TO THE PROBLEM. Notice that applying technology also has the effect of educating young people." Courtesy of Chris Gupta

LEGISLATION CORNER

Zimbabwe has recently passed the new constitution which also gives general provisions in terms of rights of citizens. The environmental rights are covered in section 73:

Environmental Rights:

1. Every person has the right –
 - a. To an environment that is not harmful to their health or well-being and
 - b. To have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures that –
 - i. Prevent pollution and ecological degradation;
 - ii. Promote conservation and

iii. Secure ecologically sustainable development and use of natural resources while promoting economic and social development.

2. The State **must** take reasonable legislative and other measures, within the limits of the resources available to it, to achieve the progressive realisation of the rights set out in this section.

GENERAL LAWS AMENDMENT NO 5

We are pleased to present the amendment to Section 128 of the Parks and Wildlife Act (20:14) regarding special penalties for certain offences;

1. Notwithstanding any other provision of this Act, any person who is guilty of an offence under this Act involving –
 - a. The unlawful killing or hunting of rhinoceros, or any other specially protected animal specified by the Minister, by statutory instrument; or
 - b. The unlawful possession of, or trading, ivory or any trophy of rhinoceros or any other specially protected animal that may be specified by the Minister by statutory instrument;

Shall be liable

- i. On first conviction, to imprisonment for a period of not less than nine years;
- ii. On a second or subsequent conviction, to imprisonment for a period of not less than eleven year.

Provided that where on conviction the convicted person satisfies the court that there are special circumstances in the particular case justifying the imposition of a lesser penalty, the facts of which shall be recorded by the court, the convicted person shall be liable to a fine four times the value of the ivory or any trophy, or to imprisonment for a period not exceeding five years or both to such fine and such imprisonment.

2. Where no special circumstances are found by a court as mentioned in the provision to subsection (1), no portion of a sentence imposed in terms of subsection (1)

shall be suspended by the court if the effect of such suspension is that the convicted person will serve –

- a. In the case of a first conviction, less than nine years imprisonment;
- b. In the case of a second or subsequent conviction, less than eleven years.

World Environment Day 2013

The Ministry of Environment and Natural Resources Management co-ordinates and leads the nation in commemorating World Environment Day celebrations on June 5 every year. World Environment Day was set aside by the United Nations General Assembly to mark the opening of the 1972 Stockholm Conference on Environment and Human Development. Celebrating World Environment Day is about the inspirational power of individual actions that collectively become a force for positive change in environmental management.

The theme for this year's World Environment Day celebrations is "Think. Eat. Save". The theme is an anti-food waste and food loss campaign that encourages food waste generators (consumers and households) to reduce the amount of food waste that they generate. According to the UN Food and Agriculture Organization, every year 1, 3 billion tonnes of food is wasted.

Since 2009 Zimbabwe has been celebrating this day in the form of Environmental Expos, where various stakeholders have been accorded an opportunity to exhibit products that revolve around a given theme. The strategy has been very effective as it provided a platform for various stakeholders to interact and showcase their opinion in promoting sustainable environmental management. This year, the exhibitions will be held in the Africa Unity Square and presentation of papers will be done at Meikles Hotel, in Harare on June 5, 2013.

