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# THE CRYSTAL

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## GREEN TECHNOLOGY

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Dear readers welcome to the second edition of our 2022 Black Crystal Newsletter. We hope that you enjoyed your Easter holiday as much as we did. As usual, we would like to encourage our readers to exercise caution with regards to the COVID-19 pandemic.

This edition of the newsletter will be focusing on Green Technology and why it is Zimbabwe's best answer to combat the Climate Change impacts that the country has been experiencing over the past two decades. You will get an appreciation of why Green Technology is the future and how you can invest in it at an individual level.

We are open to your comments and contributions especially what you are doing for the environment or what is happening in your area so that we can add it to our newsletter. Please send them to our Editor on [infor@blackcrystal.co.zw](mailto:infor@blackcrystal.co.zw). If you no longer wish to subscribe to the Crystal, please email us this instruction on the same email address.

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## What is Green Technology?

Green Technology refers to a type of technology that is considered environmentally friendly based on its production process or its supply chain. The term can also refer to clean energy production, the use of alternative fuels, and technologies that are less harmful to the environment than fossil fuels.

The common misconception with green technology is that it only refers to renewable energy which is just one of the many branches of Green Technology as we shall see in the following segment.



## Green Tech Explored

Green Technology is a canopy term that defines the use of technology and science to develop products and services that are eco-friendly. Green Tech is related to clean-tech which specifically refers to products or services that improve operational performance while also reducing costs, energy consumption, waste, or negative impacts on the environment. The goal of green tech is to protect the environment, repair past damage done to the environment, and conserve the Earth's natural resources.

## History of Green Technology

Green Tech has become increasingly popular in the modern age, however elements of these business practices have been in use since the Industrial Revolution. Beginning in the early 19th century, scientists began to observe the ecological impacts of coal-burning industrial plants, and since then industry has sought to

reduce its negative environmental impacts by improving and altering production processes to produce less soot or waste by-product's.

After the World War scientists began warning of the consequences of chemical pesticides, while doctors abroad reported mysterious illnesses associated with nuclear radiation. Many point to this era as the genesis of the ecological movement, which sought to preserve ecosystems and resources while raising awareness of the consequences of runaway technology.

Government bodies slowly recognized the importance of protecting environmental resources. Curb side recycling programs became common over the following decades, raising awareness about household waste. Environmental protection and management authorities established in this era set firm requirements on pollution and waste and established mandates for coal scrubbers and other clean technologies.

## Types of Green Technology

Green technology is a far-reaching category that incorporates several forms of environmental remediation. While climate change and carbon emissions are now considered among the most pressing global issues, there are also many efforts to address local environmental hazards. Some seek to protect specific ecosystems or endangered species. Others seek to conserve scarce natural resources by finding more sustainable alternatives however the end goal is to reduce ecological footprint.

### *Alternative Energy*

In order to provide a viable alternative to fossil fuels, many businesses are seeking to incorporate alternative sources of energy that do not generate atmospheric carbon. Solar and wind power are now among the most inexpensive sources of energy, and solar panels have become affordable to homeowners even in Zimbabwean homes. Hydro power has

also become a popular replacement of coal energy. LPG and Bio-gas have also replaced wood energy in remote areas for heating and cooking. Other alternatives, such as geothermal and tidal energy, have yet to be deployed at scale.

### *Electric Vehicles*

Nearly 15% of global greenhouse gas emissions are released by transportation activities according to the Environmental Protection Agency. Many manufacturers are exploring ways to reduce automotive emissions, either by designing more fuel-efficient engines or shifting to electrical power.

However, electric vehicles require a host of innovations in other spheres, such as high-capacity rechargeable batteries and charging infrastructure. In addition, the benefits of electric vehicles are limited by the fact that many power grids still rely on fossil fuels and the manufacturing process of the batteries that power these vehicles is still controversial. For more information on issues to do with electric vehicles' battery problem, click the image below.



### *Sustainable Agriculture*

Farming and livestock have a substantial carbon footprint, from the high costs of land and water usage to the ecological consequences of pesticides, fertilizers, and animal waste. As a result, there are many opportunities for green technology in the area of agriculture. For example, organic farming and other techniques

like vertical farming can reduce the damage due to soil exhaustion, innovations in cattle feed through bio-technology can reduce methane emissions, and meat substitutes can reduce the consumption of livestock.

### *Recycling*

Recycling seeks to conserve scarce resources by reusing materials or finding sustainable substitutes. While plastic, glass, paper, and metal waste are the most familiar forms of recycling, more sophisticated operations can be used to recover expensive raw materials from e-waste or automobile parts this includes recycling batteries, control boards and computer chips.

### *Carbon Capture*

Carbon capture refers to a group of experimental technologies that seek to remove and sequester greenhouse gases, either at the point of combustion or from the atmosphere. This technology has been heavily promoted by the fossil fuel industry, although it has yet to deliver on those expectations. The largest carbon capture facility can absorb 4,000 tons of carbon dioxide per year, a minuscule amount compared to annual emissions of 36.3 giga tons in 2021.



### **How can Green Tech help Zimbabwe combat Climate Change?**

Zimbabwe has been experiencing severe environmental, social and economic disturbances due the impacts of Climate Change including natural disasters (droughts, cyclones, heat waves and floods), poverty, pandemics, reduced productivity (GDP), water

scarcity, food and livelihood security and so on. This is an indication that there is need for a change in how we are managing our resources as the mismanagement of resources is always the culprit.

Zimbabwe has already begun the adoption of green technology especially in the energy sector where we have seen the implementation of several hydro power projects like Kariba, Tokwe Mukosi, Batoka and several others in the pipeline. Solar has also seen an increased interest over the past 5 years with power plants in Chiredzi, Colleen Bawn, Kwekwe, Norton, Umguza, Victoria Falls etc. Solar has also been adopted at household level with some being completely off grid. Wind energy is also being explored as a possibility and this is all in an effort to mitigate and adopt to climate change.

Even though Zimbabwe has adopted green technology, its implementation has been biased with a higher investment in the energy sector. Other sectors like manufacturing, agriculture and mining also require such investments in order to achieve a holistic approach that will not negate the positive impact on climate of another sector. An example is the development of proper waste handling facilities that use Integrated Solid Waste Management (ISWM) techniques to ensure that waste disposal is minimised along the waste management hierarchy. Cleaner production can also be implemented in the industrial sector to ensure waste generated from energy and raw materials along the production line is minimized. This can be achieved by the implementation of ISO standards, change in technology amongst many others.

This adoption of green technology will require a change in government policies and development of firm mandates that will force a change in attitudes.



### Green Technology Corner

The National Green Technology Policy which was issued in 2009 recognizes the importance of green technologies to achieve progress.

It is built on four pillars which include:

1. Energy – Seek to attain energy independence and promote efficient utilisation.
2. Environment – Conserve and minimize the impact on the environment.
3. Economy – Enhance national economic development through the use of technology
4. Social – Improve the quality of life for all.

Unlike the conventional method of producing energy, green technology doesn't have any harmful side effects. It relies on alternative energy sources such as wind and sun. Because it is so efficient, it often causes energy to be produced at a very low cost

### Our Take on Green Technology

As seen throughout this entire article, Green Tech is an innovative approach that will help combat climate change. It will also aid in significantly reducing the carbon footprint thus in essence, making the planet a cleaner and better place to live in. As great as Green Technology is, we must not forget the costs required to purchase and maintain this new technology. We need to strive to make Green Technology products and services an option that our

everyday people can easily afford so as to phase out unsustainable means of survival and create a cleaner and greener Earth for us all.

### What's New

Here are a few innovations that are incorporating Green Tech and that you can also implement in your homes and offices:

1. LED light bulbs – these use less energy than traditional incandescent.
2. Composting - you can make your own worm bin perfect for use in a home.
3. Programmable thermostat - you can set a schedule and automatically adjust the temperature around your comings and goings to save not only energy but also money.
4. Plant Walls - are vertical built structures that hold enough soil to have different types of plants or other greens growing on them.
5. Milk Textiles - a type of fabric that is made with the casein found in milk. Can be used to weave socks, underwear, other forms of intimate apparel, clothing usually made from wool, and household textiles.