

**APPLIED SCIENCE FOR ENVIRONMENT SUSTAINABILITY  
CLIMATE CHANGE**

**NAME: SIFUNDO MADIKIZELA**

## **CONTENT PAGE**

- 1. INTRODUCTION TO CLIMATE CHANGE.**
- 2. BACKGROUND OF CHOSEN LOCAL COMPANY.**
- 3. IDENTIFICATION OF CORE CLIMATE CHANGE RISKS**
- 4. STRATEGIES TO REDUCE CLIMATE CHANGE IMPACT WITHIN SA LOGISTICS  
INDUSTRY AND SUPPY CHAIN.**
- 5. CONCLUSION**

## **INTRODUCTION TO CLIMATE CHANGE.**

In this write up the broad topic of climate change will be discussed including the strategies to reduce climate change within the South Africans logistics and supply chain.

The term climate change refers to the change in weather patterns in an area over a specific period. This term also includes the change in average weather conditions. Climate change is commonly referred to as Global Warming. [www.dictionary.com , Wired 15 May 2018]

There are several causes of for global warming. In this write up the causes that will be discussed include: The Greenhouse Effect; Farming and Deforestation.

**The Greenhouse Effect:** Over approximately 150 years ago, a huge amount of fossil fuels such as oil and gas have been burnt in industrialised countries and when these fossil fuels are released into the atmosphere, they form a 'blanket' cover that causes heat energy from the sun to be trapped within the atmosphere therefore resulting in the earth warming up. [ United States Environmental Protection Agency accessed on 10 October 2018]

**Farming:** Animals, specifically cows, release great amount of Methane gas (greenhouse gas) after they eat. The gas becomes a contributing factor to the greenhouse effect as it multiplies as there are approximately 1.5 billion cows in the world.

**Deforestation:** Forests absorb in huge amounts of CO<sub>2</sub> (Carbon Dioxide) and release O<sub>2</sub> (Oxygen); reducing the greenhouse effect however forests are now being cut down to create more industrial places and make products from natural material from the forests.

**The Effects of Climate Change:** The causes of climate change mentioned above have serious affect on the planet, wildlife and people.

**Planet:** The blanket cover around the Earth will cause a warmer climate which will result in a drastic change in the earth's weather patterns. There will be an increase of rainfall, and sea levels will continue to rise. A decrease in sea ice will be experienced and a frequent change of seasons will also be experienced.

**Wildlife:** Wildlife species are suffering from the change in weather patterns and must constantly try to adopt to the foregoing changes. Animals whose natural habitat is ice, such as Polar Bears, must suffer from the melting ice which leaves them with minimal space to breed and live. They constantly must find new areas with ice. Other animals such as Sea Turtles, rely on nesting beaches to lay their eggs to keep the safe, but this procedure is being threatened by the rising sea levels which affect the beaches.

**People:** Regarding people, farming communities face higher temperatures and frequent draughts. The environmental conditions affect the quality and quantity of food that is produced. Farmers turn to the use of fertilisers which can in turn in the long run damage the soil. The use of fertilisers can have serious health implications such as miscarriages and cancer. [NERC 2017, British Geological Survey- Discovering Geology accessed on the 10 October 2018]

## **BACKGROUND ON CHOSEN LOCAL COMPANY**

The company chosen for this write up is Sappi. Sappi Limited is a South African pulp and paper company with global operations. Sappi describes themselves as a global diversified Woodfibre Company specialising in dissolving wood pulp, printing papers, packaging and speciality papers, casting and release papers, biomaterials and bio-energy. Sappi Limited has been in existence since 1936. Sappi Limited has customers across 150 countries. [www. Sappi.com accessed on 11 October 2018]

Sappi relies on a natural renewable material which is trees. The Sappi Group has tree nurseries and forestry plantations all over the world. Due to the demand for the product, the company has ventured to tree breeding which refers to the development of genetic trees that are suitable for the company. Sappi has ventured into this method to increase their pulp yield. The product life cycle of for this company is as follows. We are advantaged by the fact that our primary raw material is wood fibre, a renewable, recyclable natural resource. The sustainably managed forests and plantations from which we source wood fibre are essential to a healthy environment, sustaining vital plants and wildlife, filtering our water and air, and reducing greenhouse gases by removing carbon dioxide from the atmosphere. [Sappi Product Cycle 2011].

Hard and soft wood is grown in the plantations and is harvested. It is then delivered by road or rail in the form of wood logs which will be then chipped at the paper mill. The company uses lean manufacturing principles to reduce and re use energy and resources and reduce waste in the mills. After the paper has been produced it is transported to different regional distribution centres, printers and paper suppliers. Recycled paper from the community is collected and not taken to the landfill sites but it is taken back to the mill and reprocess the paper to a new product. We hold ourselves accountable to global sustainability best practice standards by transparently measuring, monitoring and communicating our economic, social and environmental performance. Our ability to deliver value creation for our shareholders by focusing on improved profitability, strategic positioning and debt reduction lies at the heart of our commitment to sustainability. Active corporate citizenship programmes relevant to the needs of the communities where we operate ensure that the promote socio-economic development within these communities. [Sappi- Group Climate Change Policy, Sappi Southern Africa Sustainability Report 2011 accessed on 11 October 2018]

We signed up to the UN Global Compact in 2008, a framework for businesses that are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labour, the environment and anticorruption. We believe that supporting this initiative will help achieve a more sustainable and inclusive global economy and that the UN Global Compact principles complement and build on our existing commitments. We annually provide a comprehensive overview of our performance against these principles.

Our global group and regional targets reflect issues are a key element in our work to enhance our sustainability performance and are detailed in sustainability, our Sustainability charter and group policies give all our geographically diverse stakeholders a common blueprint for action. We report annually on our sustainability performance in our Group Sustainability Report, in accordance with the with Global Reporting Initiative G4 guidelines core. In addition, we publicly disclose our annual submissions to the Carbon Disclosure Project as well as the Forest Footprint Disclosure Project.

## IDENTIFICATION OF CORE CLIMATE RISKS

Parts of the African continent are starting to experience drought. The drought is linked to the thickening of the layers within the atmosphere which make it difficult for heat to escape resulting in the earth warming up more than necessary. Sappi is contributing in this problem by emitting greenhouse gases in their production processes. The implications for the drought could be a threat to food security and a threat to agricultural industry which links to the growth and liveliness of the forests or land.

Spontaneous fires during dry seasons contribute to the climate changing as they affect the yearly temperate which ongoingly increasing. The water shortages that are experienced in Africa and South Africa due the change in weather patterns, pollution and deforestation. Sappi uses great amount of water when farming their trees and as well as in their production processes. The risk of having less precipitation in their environment leads to an increase of the earth heating contributing to the blanket layer in the atmosphere. Also, if the company does not have water to use in their production, the trees will not be processed therefore will start to decompose and they would release hazardous gases into the air.

We signed up to the UN Global Compact in 2008, a framework for businesses that are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labour, the environment and anticorruption. We believe that supporting this initiative will help achieve a more sustainable and inclusive global economy and that the UN Global Compact principles complement and build on our existing commitments. We annually provide a comprehensive overview of our performance against these principles in our Group Sustainability. Our global group and regional targets reflect issues are a key element in our work to enhance our sustainability performance and are detailed in our Group Sustainability. Our Sustainability Charter and group policies give all our geographically diverse stakeholders a common blueprint for action.

We report annually on our sustainability performance in our Group Sustainability Report, in accordance with the with Global Reporting Initiative G4 guidelines core. In addition, we publicly disclose our annual submissions to the Carbon Disclosure Project as well as the Forest Footprint Disclosure Project. We also publish regional sustainability reports The risks mentioned above have a huge impact on the company and on its profits. These risks can determine whether the company can produce its products are not. The risks also impact on cost of production, the employee's salaries and the amount that is charged by Sappi to its customers. A further increase in climate change can affect the supply and demand for Sappi. [ Sappi Southern Africa Sustainability Report 2011 accessed on 11 October 2018 ]

## **STRATEGIES TO REDUCE CLIMATE CHANGE IMPACT WITHIN SA LOGISTICS INDUSTRY AND SUPPLY CHAIN**

Any pulp and paper company that wants to be more environmentally sustainable needs to have good forest stewardship standards. Sappi Limited sources all of its wood and market craft pulp from well-managed forests, and procures all of its fiber from sources in accord with Forest Stewardship Council (FSC) and Sustainable Forestry Initiative (SFI) standards. The company's goal is to procure 60 percent of its fiber from certified sources by 2020; to date, it has achieved 58 percent. The certified sources include FSC, SFI and the Programme for the Endorsement of Forest Certification (PEFC). Less than 10 percent of the world's forests are certified to a credible standard.

Sappi is a leader in promoting sustainable forest management. Sappi North America was the first pulp and paper company in North America to be granted a group forest management certificate by the FSC. It is a founding member of Green Blue's Forest Products Working Group where it works on forest certification issues. Sappi Forests is a founding member of the Tree Protection Co-operative Programme (TPCP) based in the Forestry and Bio-technical Institute (FABI) at the University of Pretoria.

Sappi North America's paper mill in Cloquet, Minnesota is an example of environmental sustainability. The paper mill generates almost all of its own electricity, with over 80 percent from renewable sources. Since 2008, the mill has reduced the waste sent to landfill by over 55 percent. One way it has reduced waste is through a program which donates ash to local farmers so they can use it as a soil amendment. The program has helped the company see its lowest level of solid waste sent to landfill in the last five years. Pulp and paper companies need much energy and water to function. So, Sappi Limited generates 57 percent of its energy on-site, and 52 percent of it is renewable. In North America, the company uses renewable energy for over 70 percent of its energy needs. Sappi has reduced its specific energy consumption by eight percent and achieved a nine percent increase in energy self-sufficiency. Using less energy means less greenhouse gas (GHG) emissions. Sappi has achieved a combined 16 percent reduction of its direct and indirect GHG emissions over the last five years.

Sappi's North American mills only use surface water sources, lakes and rivers, and returns treated water to the primary source. For example, at the Cloquet mill, the treated water is returned to Lake Superior. A total of 91.8 percent of the water drawn globally by Sappi is returned, on average. In South Africa, surface water abstraction has decreased, and Sappi attributes that to the Sagicor Mill's water use reductions.

## **CONCLUSION**

In this write up Climate Change and its effects have been thoroughly broken down and explained. The core climate change risks of the paper manufacturing company were highlighted and discussed to get a better understand of the concept of climate change. The changes mentioned above have a huge impact on the business sustainability and profitability. It is very expensive for the business to maintain a good, green and safe operation while producing their product and not contributing to the drastic climate change.

## REFERENCES:

[www.wired.co.uk/article/what-is-climate-change-definition-causes-effects](http://www.wired.co.uk/article/what-is-climate-change-definition-causes-effects) Wired 15 May 2018

<http://sappi.com/about-sappi-southern-africa> accessed on 11 October 2018

<https://nationalgeographic.org/encyclopedia/greenhouse-effect/> accessed on 11 October 2018

cdn-s3.sappi.com 2011-Sappi-Southern-Africa-Sustainability-Report.pdf

Sappi-Group-Climate-Change-Policy.pdf

<https://pubs.er.usgs.gov.com> BA Middleton 2012 accessed on 12 October 2018