

## **CLIMATE CHANGE IN THE COPPERBELT PROVINCE**

### **DEFINITION:**

Climate change refers to long-term shifts in temperatures and weather patterns. These shifts may be natural, but since the 1800s, human activities have been the main driver of climate change, primarily due to the burning of fossil fuels (like coal, oil and gas), which produces heat-trapping gases.

Copperbelt Province is a province in Zambia which covers the mineral-rich Copperbelt, and farming and bush areas to the south. It was the backbone of the Northern Rhodesian economy during British colonial rule and fuelled the hopes of the immediate post-independence period, but its economic importance was severely damaged by a crash in global copper prices in 1973.

The province adjoins the Haut-Katanga province of the Democratic Republic of the Congo, which is similarly mineral-rich.

The capital is Ndola North-central Zambia, it is located on the borders with the Democratic Republic Of the Congo near Kitwe District, Ndola is one the largest cities in the country.

The population of the copperbelt province is of the total 2,768,192 of 2022 Census stability and Area total of 31,328Km<sup>2</sup>(12,096 Sq Mi)

The main cities and towns of the copperbelt province are Kitwe, Ndola, Mufira, Luanshya, Chingola, Kalulushi, and chililabombwe. Roads and Rails links extend North into Congo to Lubumbashi, but the second Congo war brought economic contact between the two countries to a standstill, now recovering.

It's informally referred to at times as copala or kopala, invoking the vernacular -like term of the mineral copper that is mined in the province.

The copperbelt province is densely populated due to rapid urbanization and industrialization which were not experienced elsewhere in the country. The province is also home to the largest world copper reserves and it's a key part of Zambia economy and it's one of the largest copper producers in the world and in Africa.

That's why climate change in Zambia's copperbelt province has led to more frequent and intense extreme weather events, such as droughts and floods. These changes have impacted Agriculture water availability and environment.

### **CAUSES OF THE CLIMATE CHANGE IN THE COPPERBELT PROVINCE**

As greenhouse gas emissions blanket the Earth, they trap the sun's heat. This leads to global warming and climate change. The world is now warming faster than at any point in recorded history.

### **1. Generating power**

Generating electricity and heat by burning fossil fuels such as coal, oil and natural gas causes a large chunk of global emissions. Most electricity is still produced from fossil fuels; only about a quarter comes from wind, solar and other renewable sources.

### **2. Manufacturing goods**

Manufacturing and industry produce emissions, mostly from burning fossil fuels to produce energy for making things like cement, iron, steel, electronics, plastics, clothes and other goods. Mining and other industrial processes also release gases.

### **3. Cutting down forests**

Cutting down forests to create farms or pastures, or for other reasons, causes emissions, since trees, when they are cut, release the carbon they have been storing. Since forests absorb carbon dioxide, destroying them also limits nature's ability to keep emissions out of the atmosphere.

## **EFFECTS OF THE CLIMATE CHANGE IN THE COPPERBELT PROVINCE**

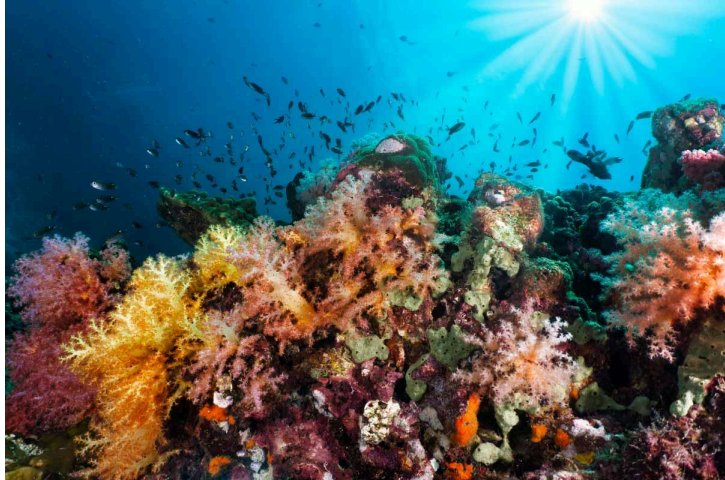
While climate change has multiple contributing factors, the unfortunate truth is that most of those factors are due to human activity. Powering buildings, producing food, manufacturing goods, generating power and deforestation are just a few main causes of the Earth's rising temperature. While a warmer planet wasn't of much concern a few decades ago.

### **1. TEMPERATURE EXTREMES:**



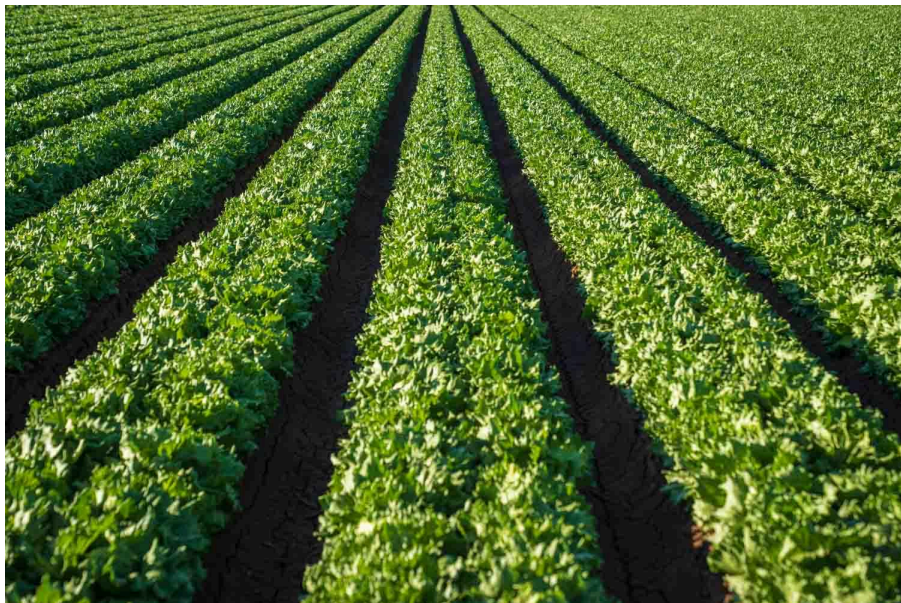
Heatwaves are classified as prolonged periods of abnormally high temperatures. When left untreated, heatwaves can cause hyperthermia or heatstroke as well as an increase in cardiovascular, kidney and respiratory disorder hospital admissions.

### **2. BIODIVERSITY LOSS:**



Warmer temperatures have a disastrous effect on the Earth's biodiversity. Natural disasters such as floods, forest fires and droughts are just a few factors caused by climate change that can cause habitat loss and food scarcity for various species of plants and animals.

### **3. FOOD SECURITY**



If you're already overwhelmed by inflation, prepare for another rise in grocery costs due to climate change! With an increase in weeds and pests and a change in rainfall patterns, fish, livestock and crop yields will begin to decline. Prices however will continue to climb as a response to declining food production.

### **4. EXTREM WEATHER**



As you may have noticed, heavy precipitation as well as flooding has already increased in many regions. Living in areas affected by flooding can also increase respiratory tract infections such as pneumonia, respiratory syncytial virus (RSV), and RSV pneumonia.

## **5. FREQUENT WILDFIRES AND BURNING FOREST**



Long periods of high temperatures cause droughts that contribute to dry conditions and uncontrollable wildfires. If that wasn't bad enough, the smoke from wildfires and burning of the forest releases carbon monoxide, nitrogen oxides, and other volatile organic compounds into the air we breathe resulting in risking our health.

## **6. AIR POLLUTION**





The effects of climate change have been known to affect human health through ground-level ozone and particulate matter air pollution, which is associated with health risks such as lung infections, asthma and premature deaths. Planting trees is a great way to keep our air clean by filtering out air pollutants such as carbon dioxide.

## **7. ENVIRONMENT CHANGE**

A) SOIL DEGRADATION; droughts have caused the soil degradation and fertility loss  
B) ANIMAL MIGRATION; Wild Animals have migrated to other places due to lack of the food and water

**C) WATER AVAILABILITY**, Droughts and Floods have increased resulting in frequent and intensity which has reduced water availability.

## **8) DEFORESTATION**

Deforestation contributes to climate change in the Copperbelt Province of Zambia by releasing carbon dioxide into the atmosphere and reducing the amount of carbon absorbed by trees.

### **Explanation**

#### **Carbon dioxide release**

When trees are cut down, the carbon stored in their trunks, leaves, and roots is released into the atmosphere.

#### **Reduced carbon absorption**

Trees absorb carbon dioxide from the air, so when they are cut down, the amount of carbon absorbed is reduced.

**Human activities**

Deforestation in the Copperbelt is caused by human activities like charcoal burning and infrastructure development.

**Population growth**

The Copperbelt is one of Zambia's most densely populated provinces, which puts more pressure on the remaining forests.

**Other effects of deforestation**

**Desertification**

**Soil erosions**

**Fewer crops**

**Flooding**

**ADAPTATIONS IN PREVENTING CLIMATE CHANGE IN THE COPPERBELT PROVINCE**

- (1) Strengthening of early warning systems to improve services to preparedness and adaptation to climate change in all the sectors (agriculture, health, natural resource, and energy).
- (2) Promotion of alternatives sources of livelihoods.
- (3) Adaptation of the effects of drought in the context of climate change in Zambia's agro-ecological region.
- (4) Management of critical habitats.
- (5) Promote natural regeneration of indigenous forests.
- (6) Adaptation of land use practices (crops, fish and livestock) in light of climate change.
- (7) Maintenance and provision of water infrastructure to communities to reduce human-wildlife conflict.
- (8) Eradication of invasive alien species.
- (9) Capacity building for improved environmental health in rural areas.
- (10) Climate-proofing sanitation in urban areas.
- (11) Planting more trees in helping carbon dioxide to be absorbed.
- (12) Minimize waste by reducing, reusing, repairing, and recycling.

**CONCLUSION**

Zambia is one of the most affected countries by climate change. Drought, floods, and higher temperatures are all environmental factors that are extremely difficult to deal with. Though the international community is willing to provide some support, there are many issues that need to be addressed in order to improve the living standards of the Zambian population. Ideally, apart from the adaptation measures listed above, the Zambian government needs to become more capable of providing some sort of security for its people. There needs to be some kind of safety net, securing the people from what would otherwise lead to diseases and death. It is obvious from the many issues related to climate change adaptation and poverty reduction that there is no single solution. It is rather a long list of issues that need to be addressed, in order to address

the country's needs from many angles and would then synergistically improve Zambia's dire situation.