Climate change is having a profound impact on the North-Western Province of Zambia, with rising temperatures, changing rainfall patterns, and increased frequency of extreme weather events affecting agriculture, human health, and infrastructure. The province is experiencing an increase in average temperatures, with a projected rise of up to 2°C by 2050.¹ This warming trend is expected to continue, with severe consequences for agriculture, human health, and ecosystems.

Rainfall Patterns and Agriculture

Rainfall patterns are also changing, with a decline in rainfall predicted in the northern region of Zambia, including the North-Western Province.² This decline in rainfall, combined with increased temperatures, is affecting crop yields, livestock productivity, and food security. Smallholder farmers, who are the backbone of Zambia's agriculture sector, are particularly vulnerable to climate-related shocks.³

Climate-Related Disasters

The North-Western Province is prone to climate-related disasters, including floods, droughts, and landslides. These disasters have significant impacts on human health, infrastructure, and the economy. For example, in 2024, Zambia declared a national emergency as a result of a prolonged drought, which affected 84 districts across the country, including the North-Western Province.

Climate Change Adaptation and Mitigation

To address the impacts of climate change, the Zambian government, with support from international partners, is implementing various adaptation and mitigation measures. These include promoting conservation agriculture, enhancing early warning systems, and supporting climate-resilient infrastructure development. Additionally, efforts are being made to promote renewable energy, energy efficiency, and sustainable land use practices.⁴

Climate Change and Human Health

Climate change is also having a significant impact on human health in the North-Western Province. Changing weather patterns and increased frequency of extreme weather events are increasing the spread of diseases such as malaria, diarrhea, and respiratory infections. Malaria continues to be a major public health problem in Zambia, estimated to affect over 4 million Zambians annually.⁵

Initiatives and Development Plans

Several initiatives and development plans are being implemented to address the impacts of climate change in the North-Western Province. For example, the Zambian government has launched a new initiative to adapt to climate change, which focuses on restoring damaged ecosystems and promoting climate-resilient agriculture practices [6].

Opportunities for Climate Change Mitigation and Adaptation

There are several opportunities for climate change mitigation and adaptation in the North-Western Province. These include:

- Promoting Climate-Smart Agriculture: Climate-smart agriculture practices can help reduce greenhouse gas emissions and improve agricultural productivity and resilience.

- Conservation of Forests: The conservation of forests can help reduce deforestation and promote sustainable land use practices.

- Promoting Renewable Energy: The promotion of renewable energy sources, such as solar and wind power, can help reduce dependence on fossil fuels and promote energy efficiency.

- Enhancing Early Warning Systems: Enhancing early warning systems can help communities prepare for and respond to climate-related disasters.

In conclusion, climate change is having a significant impact on the North-Western Province of Zambia, affecting agriculture, human health, and infrastructure. Understanding the impacts of climate change and implementing effective adaptation and mitigation measures is crucial in reducing the vulnerability of communities to climate-related shocks. Further research and policy support are needed to address the remaining gaps and ensure that the North-Western Province is better equipped to adapt to the challenges of climate change.

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