

# Geo-agriculture for Climate Resilience: Towards Pioneering Anticipatory Adaptation in Namibia

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## SUMMARY

The impact of climate change on agricultural production in Namibia (and Africa at large) is worsening as a result of increasing loss of fertile soil and water scarcity thereby leading to food insecurity. Therefore, geo-agriculture emerges as a promising solution to food insecurity as an mitigative and adaptive measure that utilizes geological resources like rocks and minerals to enhance crop yields. Geo-agriculture offers benefits that align with key Sustainable Development Goals (SDGs), like zero hunger and climate action. This paper portrays the geo-agricultural dimension of climate change mitigation and adaptation. This is done by cultivating seeds to maturity in geological formations (with or without soil). As a result, farmers may utilize local geological resources, thus reducing their dependency on costly external inputs such as chemical fertilizers, which are harmful to the environment. Additionally, the implementation of geo-agriculture creates knowledge exchange and innovation within communities as farmers experiment with various geological amendments tailored to their specific soil and climate conditions. Therefore, this paper presents geo-agriculture as an anticipatory adaptive measure to help address the immediate challenges posed by climate change but also as a foundation for long-term sustainable development in Namibia and across Africa. Finally, the implementation of geo-agriculture promises a pathway toward increasing climate resilience and fostering sustainable development in Namibia and other similar situations worldwide.

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