2024 ENGINEERING INSTITUTION OF ZAMBIA SYMPOSIUM

ADAPTING TO CHANGE: A CRITICAL REVIEW OF CURRENT AND FUTURE CLIMATE CHALLENGES

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Presentation outline

- Abstract
- Introduction
- Images of the present and future climatic challenges
- Significance of Study
- Methodology
- Results and Discussion
- Recommendation
- Conclusion

Abstract

- The study utilized a systematic review guided by the PRISMA Statement.
- Thematic analysis was employed
- The paper underscores the significance of climate change adaptation research over the past fifty years
- it advocates for coastal engineering to prioritize climate-conscious approaches

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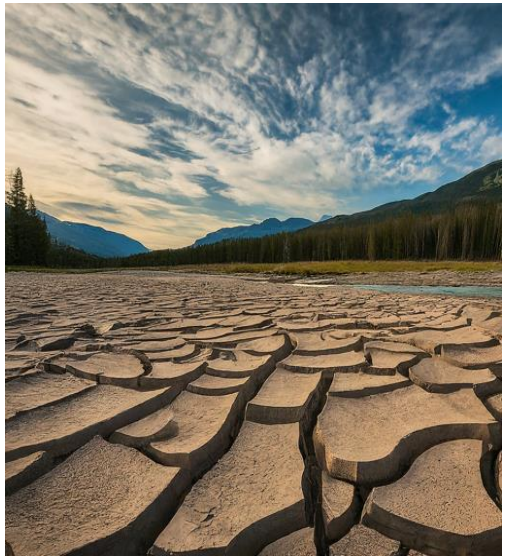
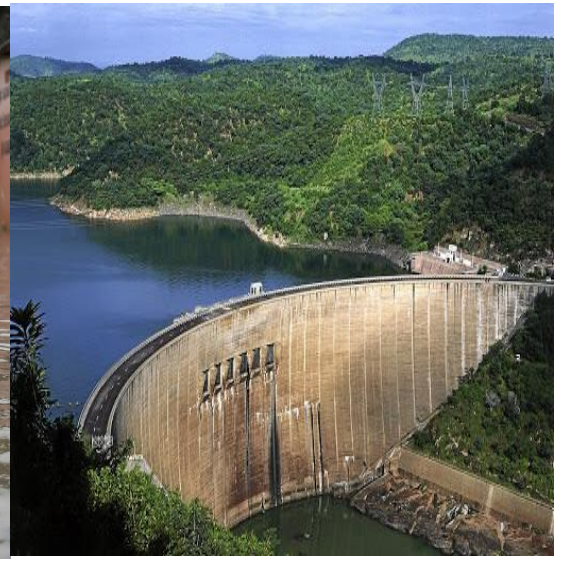
- Develop comprehensive risk frameworks, and explore inherently adaptive options.
- Additionally, it stresses the need for increased observations, attribution of coastal impacts, improved climate projections
- Conclusively, the transition to sustainable communities and the effective adaptation

Introduction

- Changes in the Earth's climate
- Major sectors responsible for emitting these gases
- Climate change is a global threat (Gómez-Echeverri, 2018).
- According to (WHO, 2023), about 3.6 billion people globally already live in areas highly susceptible to climate change
- Between 2030 and 2050, climate change is expected to cause approximately 250 000 additional deaths per year(WHO, 2023).
- Climate change poses a significant threat to global sustainability (Abbass, *et al*., 2022).

Current and Future Climatic Challenges






Significance of the Study

- This paper will contribute valuable insights to the discourse on climate change adaptation
- The expected outcomes include evidence-based recommendations
- Mitigating risks; The study will help identify and address vulnerabilities to climate change
- The findings of the study will play a critical role in Protecting Communities, Economic Sustainability, Health and Well-being, and Policy development

Literature Review

- Climate change is a global issue that affects every continent (Nhemachena, *et al*., 2020).
- As the global climate continues to evolve it is imperative that we understand the challenges it presents and develop strategies to adapt to these changes (Sturiale, L. and Scuderi, 2019).
- Global warming, driven by the increase in greenhouse gases in the atmosphere, is leading to a range of impacts on our planet (Sukri and Wah 2018).

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- **Strategies for adapting to environmental changes;** implementation of ecosystem-based adaptation (Abbass, *et al*., 2022).
- **The role of technology in climate resilience ;**The role of technology in climate resilience is crucial and can greatly aid in adapting to environmental changes (Ghimire, Khatri-Chhetri and Chhetri, 2022).
- **Future forecast: predicting climate trends and challenges;** In order to successfully adjust to climate change, it is essential to anticipate and predict future climate trends and challenges (Aryal, *et al*., 2019).

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- **potential limitations of technological solutions;** The reliance on technological solutions can sometimes lead to a sense of complacency (Byerly, *et al*., 2021).
- **Cross-sector collaboration;** This enables knowledge sharing and learning across sectors (Pedersen, *et al*., 2020).
- **Local perspective;** Understanding climate change adaptation in Africa is also a key consideration (Abraham, 2018).

Literature Critique

- The authors highlight the challenges in capturing relevant publications and suggest future research to analyze grey literature trends.
- They highlight several research gaps, which include the following;

a. limited real-world applications of the adaptation pathways approach
b. improved climate models
c. enhanced local projections
d. specific training for coastal engineers
e. comprehensive risk frameworks

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- They also highlight the need for further exploration of barriers to adaptation and risk coping mechanisms for poorer households

Methodology

- The study utilized a systematic review guided by the PRISMA Statement
- Thematic analysis was employed to identify five main themes and 18 subthemes.
- The methodology also employed exclusion terms
- The methodology included examination of climate change projections and climate records
- The study followed a systematic approach to identify and analyze relevant literature on adaptation strategies for climate change impacts on water quality.

Results and Discussion

- The study aimed to develop a systematic review of climate change adaptation practices among diverse communities, resulting in 20 related studies
- Thematic analysis revealed five main themes and 18 subthemes
- The review presented several recommendations
- The main findings emphasize the importance of adaptation in climate policy
- Climate disasters are increasing, impacting communities, infrastructure, and ecosystems

Recommendation

Overcoming obstacles to adapting to climate change requires a multi-faceted approach

To address these barriers, it is important to:

- Increase awareness and understanding of climate change risks
- Enhance financial support and investment in climate adaptation initiatives
- Strengthen institutional capacity and governance structures
- Foster collaboration and partnerships among stakeholders

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- Develop and implement policies and regulations
- Promote community engagement and participation in climate adaptation efforts
- Develop and promote innovative technologies and tools

Conclusion

- The transition to sustainable communities and the effective adaptation to climate change require collective action
- Collaboration between stakeholders, and the integration of scientific knowledge into decision-making processes
- Cross-sector collaboration is essential for developing comprehensive and integrated adaptation strategies
- Building resilient communities and ecosystems
- implementing adaptation strategies involves assessing vulnerability

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- Overall, addressing climate change challenges and building sustainable and resilient communities require a multi-faceted and holistic approach
- The need to review and strengthen Policies in Zambia i.e. The National Policy on Environment and The National Policy on Climate Change

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Thank you..!

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