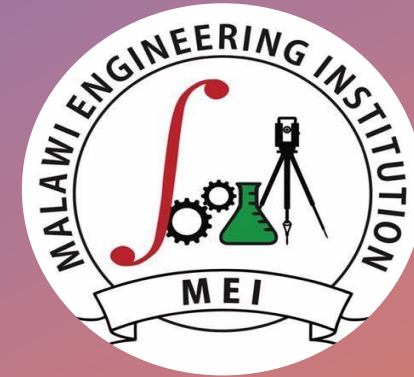


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# GUIDELINES & STANDARDS FOR CLIMATE RESILIENT INFRASTRUCTURE

Presented by

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# **PRESENTATION OUTLINE**

- **INTRODUCTION**
- **DEVELOPMENT**
- **IMPLEMENTATION**
- **CHALLENGES IN DEVELOPMENT AND IMPLEMENTATION**
- **POTENTIAL BENEFITS**
- **FRAMEWORK FOR GUIDELINES DEVELOPMENT**
- **CONCLUSION**



# INTRODUCTION

## *Building a Resilient Future: Climate-Resilient Infrastructure Standards and Guidelines*

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- **Definitions**
  - Resilience
  - Climate resilient infrastructure
- **Disasters**
  - Hydrometeorological
  - Climatological
  - Geophysical



# Definitions

- **Resilience**

the ability of a system exposed to hazards to resist, absorb, accommodate to, and recover from the effects of a hazard in a timely and efficient manner including through the preservation and restoration of its essential basic structures and functions -

*Katarina Rus*

- **Climate resilient infrastructure**

the ability of a system and its component parts to effectively sustain functionality and recover when subjected to extreme (acute) shocks and chronic stresses caused by the effects of climate change -

*Global Centre on Adaptation*

# Disasters

- **Disasters**

- Hydrometeorological (floods, heat waves, storms etc.)
- Climatological (droughts, wildfires etc.)
- Geophysical (earthquakes, volcanic eruptions etc.)

The world's concentration is mostly on climatological and hydrometeorological disasters which are on the rise and their increase has an ominous link to climate change, as compared to geophysical ones (earthquakes, volcanic eruptions)

# KEY STEPS IN DEVELOPMENT OF GUIDELINES & STANDARDS

## *Setting the Stage for Resilience*



Understand Climate Risks and Vulnerabilities



Incorporate Climate Data and Projections



Consider Multi-Hazard Approach



Adopt Resilience Design Principles



Engage Stakeholders



Implement Adaptive Management



Comply with Relevant Standards

- Invest in Maintenance and Upkeep
- Plan for Financial Resilience
- Document and Share Knowledge
- International Frameworks
- Use Resilient Construction Materials
- Consider Future Scenarios

# IMPLEMENTATION

## *Putting Theory into Practice*

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- Regulatory Framework
- Capacity Building
- Incentives and Funding
- Public Awareness





# IMPLEMENTATION

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- **Regulatory Framework**

- establishment of building codes and regulations
- establishment of monitoring and enforcement mechanisms
- encompasses land-use planning and zoning regulations



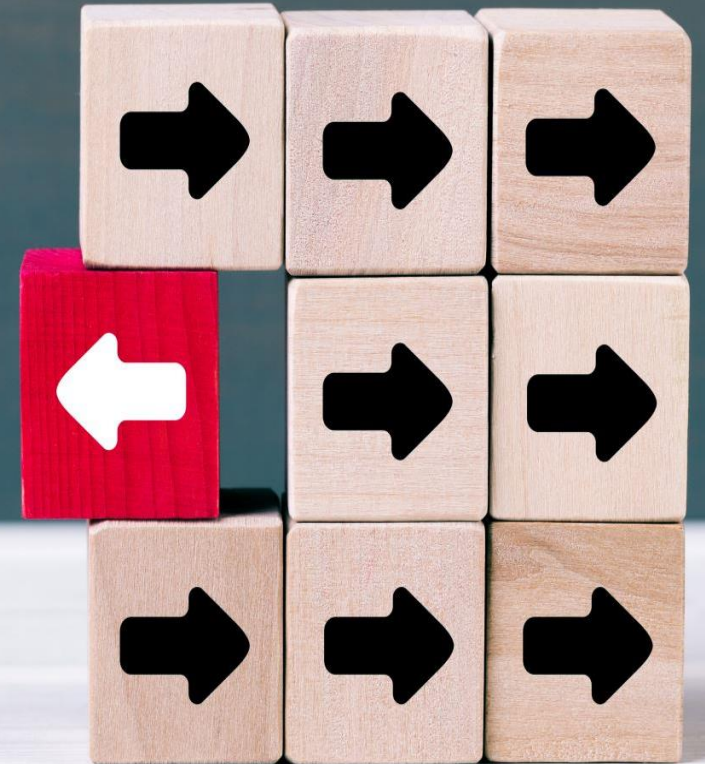


# IMPLEMENTATION

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- **Capacity Building**

- knowledge dissemination
- development of technical skills
- fostering collaboration and partnerships among different stakeholders
- raising awareness and promoting behavior change.



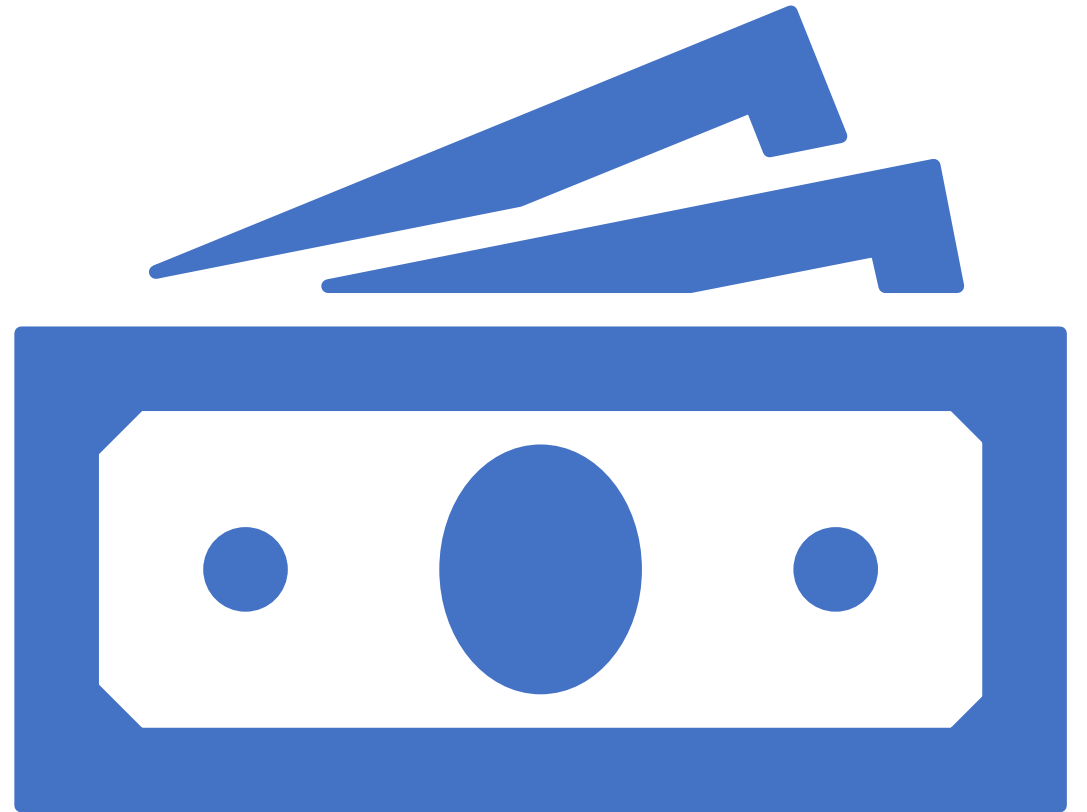
# IMPLEMENTATION

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- **Incentives and Funding**

- financial incentives

- regulatory incentives



# IMPLEMENTATION

- **Public Awareness**

- helps garner support from the community and stakeholders

*When people understand the potential impacts of climate change on their lives and the benefits of resilient infrastructure, they are more likely to advocate for and contribute to these initiatives*





# CHALLENGES IN DEVELOPMENT AND IMPLEMENTATION

*Navigating the Roadblocks*



Financial Constraints



Political and Regulatory Hurdles



Data Limitations



Interconnected Systems



Public Perception and Engagement

# CHALLENGES

- **Financial Constraints**

- Hinders collaborative efforts

- Limits the depth of scope & depth of validation efforts – potentially leaving gaps in the guidelines applicability & efficacy

# CHALLENGES

- **Political and Regulatory Hurdles**

- Political resistance to regulatory changes

- Lack of consensus within the political arena regarding the gravity of certain climate threats

- Fragmented regulatory landscape



# CHALLENGES

- **Data limitations**

- Completeness and availability of data

# CHALLENGES

- **Interconnected systems**

- Infrastructure systems are interconnected in nature
- Systems are often interdependent on – where disruptions in one sector can trigger cascading impacts on others
- Amplifies the potential for domino effects during extreme weather events or climate related disruptions
- Coordinating efforts to enhance resilience across various sectors can be complex due to differences in infrastructure ownership, management & regulatory frameworks

# CHALLENGES

- **Public perception and engagement**

- Resistance to Change

- Stakeholder Conflicts

- Risk Perception

- NIMBY Syndrome



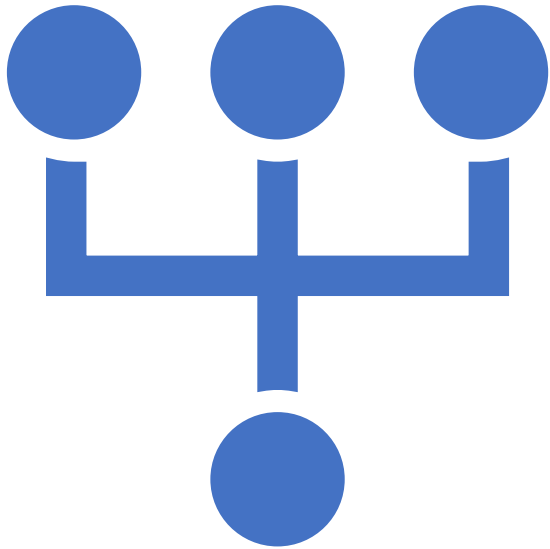
# POTENTIAL BENEFITS

*Reaping the Rewards of  
Resilience*

- Reduced Economic Costs & Long-Term Cost Saving
- Sustainable Development
- Enhanced Public Safety
- Global Competitiveness & Business Continuity

# FRAMEWORK FOR GUIDELINES & STANDARDS DEVELOPMENT

*Building the Blueprint*



Why do we need to have a framework?????????

# FRAMEWORK FOR GUIDELINES DEVELOPMENT

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Ensures that standards and guidelines are developed through a systematic and rigorous process. (This helps maintain a high level of quality and reliability in the resulting standards, which is essential for their effectiveness and trustworthiness)



Standards and guidelines developed within a framework are more likely to be consistent with each other and with international or industry best practices



# CURRENT EFFORTS - MALAWI

- Development of standards & guidelines for climate resilient water infrastructure




# CONCLUSION

## *Paving the Way Forward*

- The journey towards resilient infrastructure is multifaceted and requires the collaboration of governments, industries, communities, and academia
- it is important to recognize that resilience is not a one-size-fits-all concept. The specific needs and challenges of each region and sector must be considered when developing and applying these standards





*“if our infrastructure has to be resilient to the changing climate patters, it has to answer to the question of **quality**. If our infrastructure must contribute to the Vision 2063, it has to be of high **quality**. If our infrastructure is to accelerate social economic growth to create an inclusively wealth nation, it must be **Quality Infrastructure...**”*

Eng. Gerald Khonje

*Kelvin Chinyanga*