

STAKEHOLDER WORKSHOP

Focus On Tanzania

Second External Stakeholder Workshop,

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**Towards Climate Resilient Infrastructure
Investments for Socio-Economic
Development**

Presentation outline

- **Linking Development and Climate Change**
- **Impact of Extreme Events on Infrastructure**
- **Impact of Sea Level Rise on Coastal Infrastructure**
- **Pathways to Climate Resilient Infrastructure**

Linking Development and Climate Change

- The fast growing population in developing countries including Africa is posing increasing need for extensive physical infrastructure.
- African countries are enhancing infrastructure in order to provide a growing population with cleaner energy, water and transport on a sustainable basis.
- However, they often fail to take account of the resulting climate risks, which are usually accompanied by high costs.
- The 2030 Agenda for Sustainable Development recognized that climate change and ensuring the resilience of infrastructure are two of the greatest challenges of our time
 - Climate being one of the factors challenging the infrastructure resilience.
- Hence, the continent is facing the potential of a \$183.6 billion USD liability to repair and maintain roads damaged from temperature and precipitation changes directly related to predicted climate change through 2100.

Impact of Extreme Events on Infrastructure

- Many of the projections indicate an increase intensity of extreme rainfall events in much of East Africa, including in Tanzania by the end of the century (i.e. 2100).
- These are associated with higher flood risks.
- Flood events have major effects on key infrastructure,
 - Through inundation leading to flood damage to physical infrastructure, or
 - From river floods washing away and damaging infrastructure
 - When this affects critical infrastructure, e.g. water treatment, electricity, etc., it has much greater risks to the local population in terms of health risk and fatalities.
- These increases in intensity would also increase the relative economic costs of periodic flood events.

Impact of Extreme Events on Infrastructure

- In rural areas, roads represent a lifeline for economic and agricultural livelihood
- But also, roads provide a number of indirect benefits including access to healthcare, education, etc.
- Extreme events pose a costly hazard to roads in terms of degradation, necessary maintenance, and potential decrease in lifespan.
- Hence, climate change poses costly impacts in terms of maintenance, repairs and lost connectivity
- Many of these impacts can be mitigated and avoided by pro-active adaptation measures.
- It is therefore a crucial consideration for protecting current and future infrastructure investments and the economic, social, and other functions they serve.
- Unfortunately, future climate conditions are seldom considered in the planning of such infrastructure.
- Potential for increased flooding places food transportation infrastructure at higher risk of damage.
 - In this respect, leading to high post-harvest losses.

Impact of Sea Level Rise on Coastal Infrastructure

- There is documented evidence that sea level rise, increases in storm intensity and other extreme events will impact the infrastructure, particularly in tropical SIDS (SR on Oceans and Cryosphere).
- Physical climate drivers and impacts of climate change include coastal infrastructure damage.
- The city and nearby coastal towns have many low-lying areas and include significant population and infrastructure are vulnerable to sea level rise.
- Sea level rise and extreme weather events disrupt transport systems, production systems, infrastructure, public services (water, education, health, sanitation), especially in informal areas (flooding) (medium confidence).

Pathways to Climate Resilient Infrastructure

- There is a need to enhance the resilience of existing infrastructure to a changing climate and to potentially more extreme weather conditions
 - taking into account the social and economic costs of infrastructure failure.
 - The need to build resilience to droughts and floods is therefore a key priority
- Mainstreaming adaptation into infrastructure development can be achieved at low cost
 - Example for flood prone roads in Mozambique (Halsnæs and and Trarup, 2009).
- Integrating climate change considerations into infrastructure at the design stage is preferable from a cost and feasibility perspective than trying to retrofit infrastructure (Chigwada, 2005; Siegel, 2011).
- For this to be realized,
 - Effective weather and climate information services are critical to better manage risks from climate variability and longer-term changes in climate sensitive sectors.
 - Require policy framework to support mainstreaming process

Pathways to Climate Resilient Infrastructure

- However, there are challenges in conducting economic assessments for built infrastructure adaptation
- This is due to complicated uncertainties such as the accuracy of climate projections and limited information regarding paths for future economic growth and adaptation technologies.
- Hence, capacity enhancement is required

THANK YOU
