CASE STUDY - INFRASTRUCTURE

TANZANIA

CONTEXT

The government of Tanzania has recently allocated 700 million US$ for the construction of the Standard Gauge Railway (SGR).

The SGR will go from Dar es Salaam to Makutopora, covering a distance of 722 kilometers.

COWI, our end-user, is responsible for the design of the section running from Dar es Salaam to Morogoro.

This type of infrastructure is vulnerable to climate variations, especially flooding.

This case study will demonstrate how to better characterize future weather patterns and extremes to derive future design values and operational thresholds under different conditions.

Ensuring appropriate protection against extreme events and addressing emergency management plan and actions that can be integrated into normal maintenance will also be demontrated.

EXPECTED RESULTS

1

Application of bias-corrected or high resolution projections.

2

Application of tailored non-stationary EVA method.

3

Optimized rail structure's 100 year design values.

TOOLS & APPROACH

Close engagement with COWI to ensure that the existing decision-making processes will integrate climate risk, both strategically and operationally.

Analysis of latest high-resolution projections in terms of potential changes in weather regimes and extremes for rainfall and air temperatures.

Derivation of design values, from climate data, required by the SGR Design Standard Manual using an in-house advanced non-stationary Extreme Value Analysis (EVA).

CLIMATE SERVICES

BASELINE

Design infrastructure using standard GEV EVA methods and historical climate data.

INNOVATION

Design infrastructure using advanced EVA methods and high resolution climate model data.

THE TEAM

RESEARCH	SERVICE PROVIDER	END USER
University of Cape Town · iYunivesithi yaseKapa · Universiteit van Kaapstad Met Office	TMA Tanzania Meteorological Authority Amigo	COWI

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