Virtual Dialogues on
RESILIENT INFRASTRUCTURE

MYANMAR DISASTER RISK ASSESSMENT

MUDRA

Myanmar Unified platform for Disaster Risk Application

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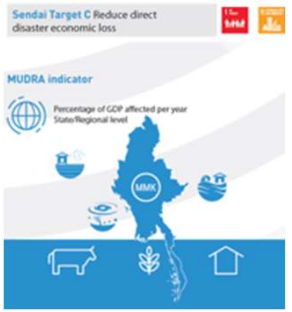
ADB

Purpose

- Guide Government of Myanmar (GoM) prioritize actions in disaster risk management (DRM) and climate change adaptation (CCA) through better understanding of climate and disaster risk.
- Strengthen institutional linkages between agencies – provider and users of risk information
- Support GoM track progress in reducing disaster risk through 6 indicators aligned with indicators of global and regional frameworks

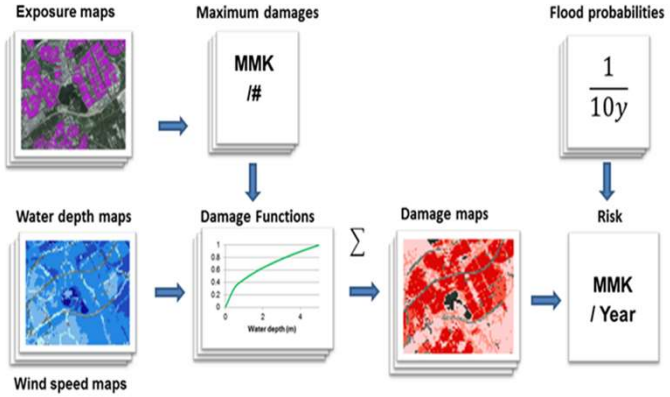


Risk Assessment

- Assessment carried out at two levels (National and Ayeyarwady Region). led by the Department of Disaster Management (DDM), Department of Meteorology and Hydrology (DMH) and Environmental Conservational Department (ECD).
- Undertaken by Deltares, Royal HaskoningDHV, Wageningen University

Assessment includes

- Hazards – riverine flooding and cyclone (wind and storm surge)
- Exposure – people, assets and infrastructure
- Vulnerability – housing, crops, livestock and aquaculture
- Disaster risk quantified for -5,-10,-20,-50, and -100 year return periods for historical climate and future climate change scenarios (RCP 4.5 and RCP 8.5) for 2040 and 2080



- Assessment results made available on MUDRA, an online GIS platform - https://www.mudra-ddm.info/

MUDRA

Myanmar Unified platform for Disaster Risk Application

Features:

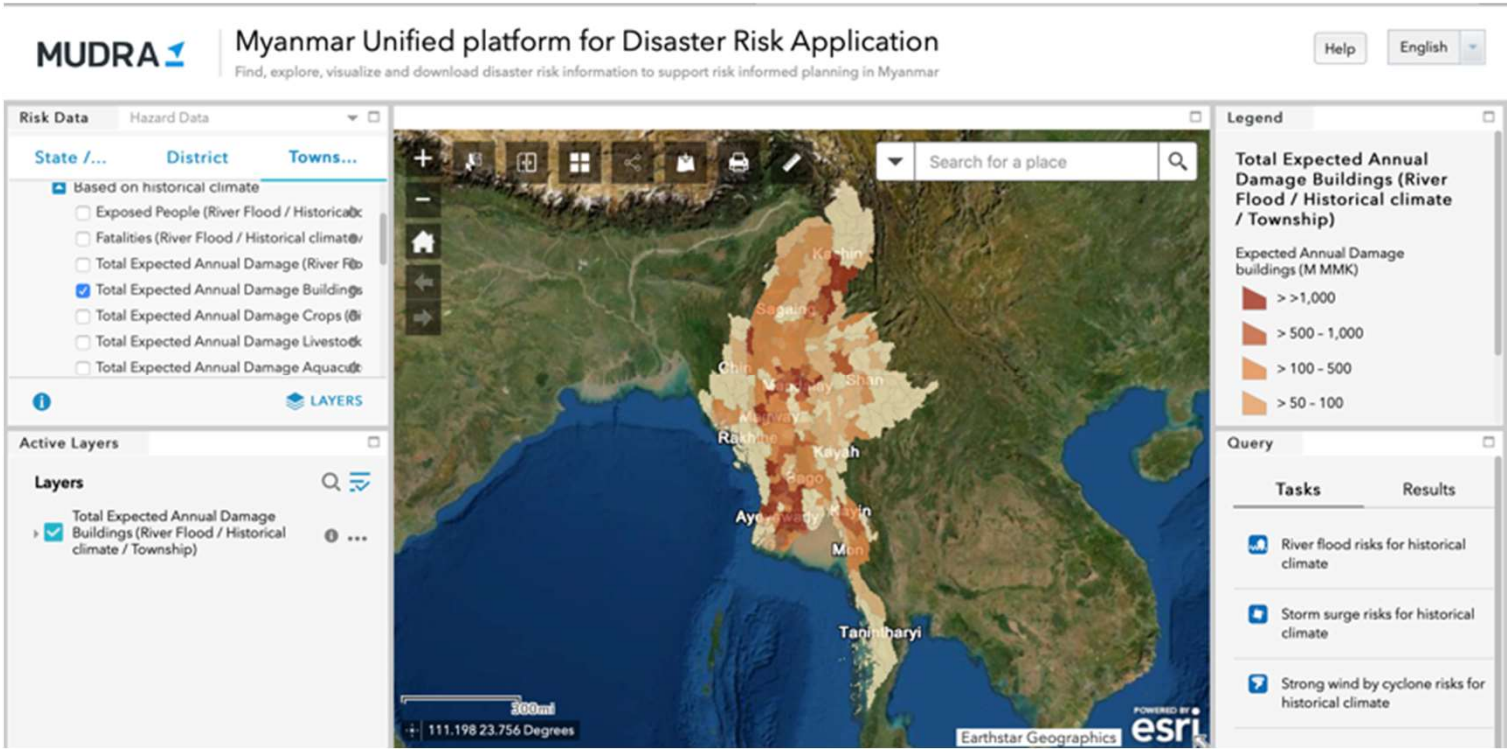
Hosted on OneMap Myanmar portal

Visualize disaster risk at different levels

60+ exposure data sets including critical infrastructures

Bilingual platform compatible with smart phone

Flexible to include other hazard model results and update datasets



https://app.mudra-ddm.info

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- Critical infrastructure
  - Highways (roads)
  - Airports
  - Post offices
  - Railways
  - Industrial Zone
  - Ports MPA
  - Warehouse DDM
  - Cyclone shelters
  - Cyclone shelters Ayeyarwady
  - Schools (shelter) Ayeyarwady
  - Hospitals (shelter) Ayeyarwady
  - Rural roads
  - Bridges
  - Embankments
  - IWUMD Infrastructure
  - Power plants
  - Power lines
  - Schools (basic)
  - Evergreen projects
  - Water supply
  - Off grid
  - Fire stations

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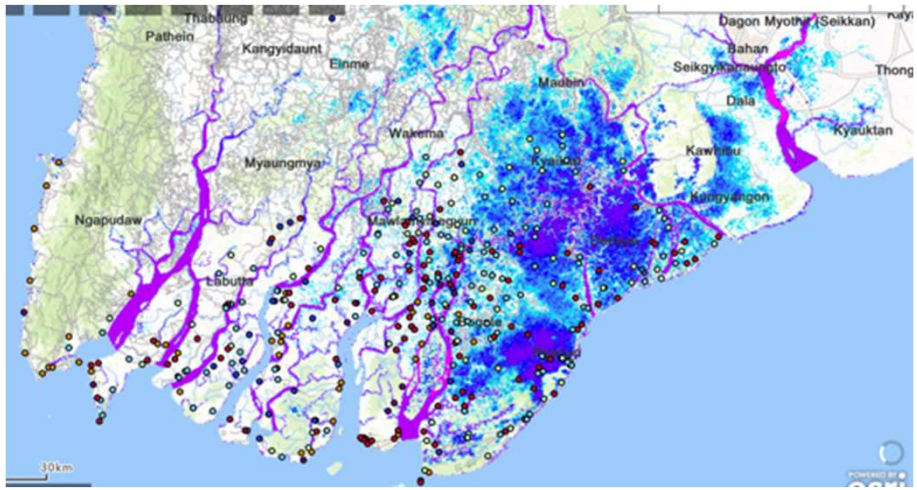
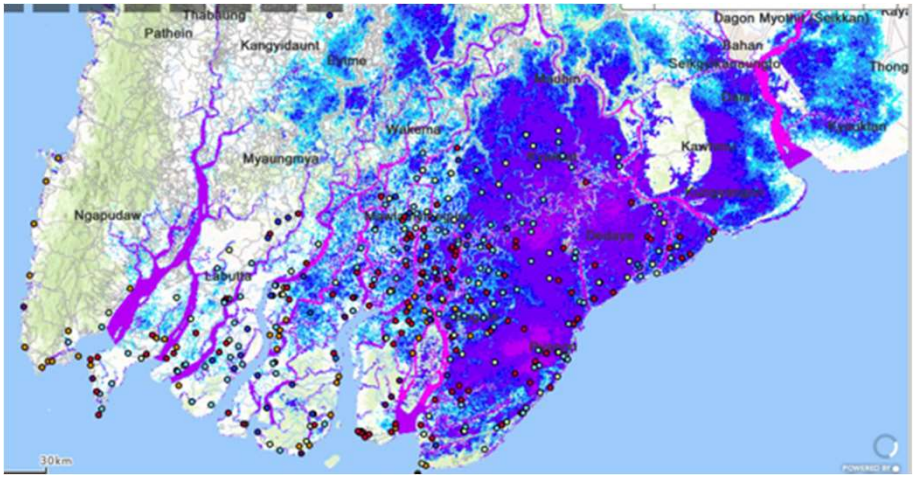
Applications- Exposure overlay of critical infrastructure

Exposure of cyclone shelter and rural roads for 1 in 20 year and 1 in 100 year storm surge reveals many shelters will not be available or usable for evacuation

https://app.mudra-ddm.info



Exposure of Cyclone Shelters and Rural Roads
Ayeyarwady Region for 1 in 20 years Storm Surge



Exposure of Cyclone Shelters and Rural Roads
Ayeyarwady Region for 1 in100 years Storm Surge

Overlay options can be used for other critical infrastructure such as fire services, warehouses, school, bridges, economic zones, highway, rural water supply and electrification projects etc.

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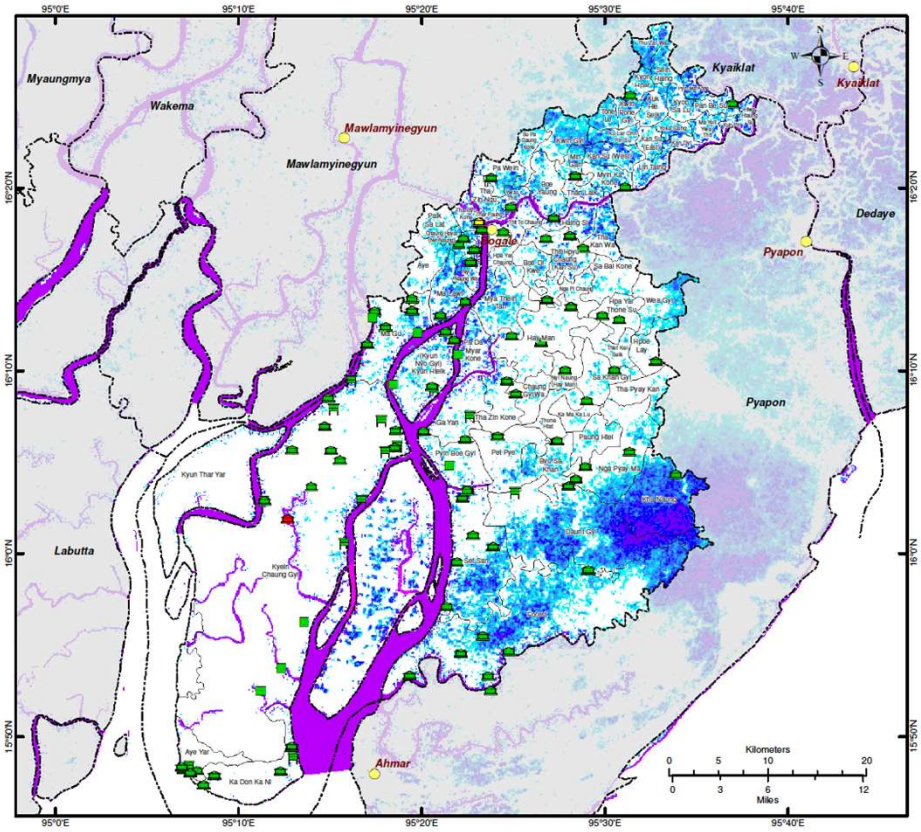
Next level of analysis

Based on the cyclone shelter data, detailed analysis is being undertaken to assess the usability / functionality of the shelter for various return periods.

To further support improvement of planning, design and maintenance of shelters.

Usability / Functionality of Cyclone Shelter in Bogale Township for a 1 in 10 Years Return Period Storm Surge Flood Base on Historical Climate



Scenario: 1 in 10 Years Return Period Storm Surge Flood Base on Historical Climate

Legend

- Town
- VT Boundary

Shelter Type

- Hospital-cum (0)
- Monastery-cum (0)
- Multipurpose building (10)
- School-cum (90)
- Stand-alone (12)
- Storm and Flood resistant building (0)

Potential Flooding

- High Risk
- Moderate Risk
- Low Risk
- Safe Shelters
- No Data (Floor OR Plinth high)

Storm Surge (meter)

- 0 - 0.25
- 0.26 - 0.5
- 0.51 - 0.75
- 0.76 - 1
- 1.01 - 2
- 2.01 - 5
- >5

Note : The map has been prepared by overlaying the flood / storm surge hazard and the plinth height of the shelter and also taking into account of uncertainty with the flood hazard maps.

Disclaimer: This is an indicative map accuracy varies due to modelling limitations.

Key Learnings and Way forward

- Risk assessment is a process. Requires country ownership, flexibility and long-term engagement.
- Building capacity of national institutions including professional societies and academia is critical for the success of the assessment. Constant dialogue to strengthen linkages between risk information provides and users.
- Exposure and vulnerability is equally important as hazard assessment. Need to support Countries in building the capacity for improving exposure and vulnerability (damage) data.
- Risk information needs to be accessible to everyone. Projects supporting risk assessment should ensure that data behind the assessment is readily available
- Users are discerning, needing follow up support to understand how risk data is derived before they are willing to accept and use it
- Engagement in risk assessment provides opportunity for initiating dialogue on standalone resilience investments and improving pipeline line investments.

- To improve MUDRA user interface and work towards data standardization
- To explore incorporation of additional hazard and risk information
- To further expand the outreach for wider usage and capacity development activities for long term sustainability

Thank You