

This is not an ADB material. The views expressed in this document are the views of the author/s and/or their organizations and do not necessarily reflect the views or policies of the Asian Development Bank, or its Board of Governors, or the governments they represent. ADB does not guarantee the accuracy and/or completeness of the material's contents, and accepts no responsibility for any direct or indirect consequence of their use or reliance, whether wholly or partially. Please feel free to contact the authors directly should you have queries.

# **Tongatapu Multi-Hazard Disaster Risk Assessment (MHDRA)**

**Preliminary Lessons from a Pilot  
11.11.2020**



## Piloting a comprehensive approach to Disaster Risk Assessments in the Pacific



### PREVIOUS

Short-term focus on climate-/ disaster-proofing projects



### PILOTING

Longer term focus on setting parameters for resilient development and adaptation strategies and supportive investments

## Piloting a comprehensive approach to Disaster Risk Assessments in the Pacific



### PREVIOUS

Short-term focus on climate-/ disaster-proofing projects



**Separate Climate and Disaster Risk Assessments**



### PILOTING

Longer term focus on setting parameters for resilient development and adaptation strategies and supportive investments

**Integrating CC projections methodically into analysis of inundation hazards**

**Covering geophysical and weather-related hazards**

## Initial Scope of the MHDRA Tongatapu

Phase	Initial Scope	Post-Inception
<b>Hazard Assessment</b> (probabilistic except tsunami)	<b>Inundation Hazards plus CC:</b> Pluvial floods (rain); coastal inundation (storm surges and “king waves”); tsunamis	
<b>Exposure Assessment</b>	<b>Buildings</b> (commercial, public, residential)  <b>Roads</b> (entire network)  <b>Population</b> (village level)	
<b>Vulnerability Assessment</b>	Vulnerability functions for <b>building/road typologies</b> for water inundation hazards  <b>Village social vulnerability index</b>	
<b>Risk Assessment Outputs</b>	Hazard Return Period Data; Exposure Maps; Vulnerability Curves and Indices; Damage/Cost Exceedance Probability Curves, RPL and AAL etc.	

## Post-Inception Scope of the MHDRA Tongatapu

Phase	Initial Scope	Post-Inception
<b>Hazard Assessment</b> (probabilistic except tsunami)	<b>Inundation Hazards plus CC:</b> Pluvial floods (rain); coastal inundation (storm surges and “king waves”); tsunamis	<b>Wind (cyclones)</b> <b>Seismic (earthquakes)</b>
<b>Exposure Assessment</b>	<b>Buildings (commercial, public, residential)</b>  <b>Roads (entire network)</b>  <b>Population (village level)</b>	<b>Energy assets: generation and transmission</b> <b>Water assets: production, storage, distribution</b> <b>Land: agricultural, environmental conservation</b>
<b>Vulnerability Assessment</b>	Vulnerability functions for <b>building/road typologies</b> for water inundation hazards  <b>Village social vulnerability index</b>	<b>Building/roads and social vulnerability index</b> to cover wind/seismic hazards Vulnerability functions for specific <b>water/ energy assets</b> for all hazards covered
<b>Risk Assessment Outputs</b>	<b>Hazard Return Period Data; Exposure Maps; Vulnerability Curves and Indices; Damage/Cost Exceedance Probability Curves, RPL and AAL etc.</b>	Expanded to <b>cover additional hazards and assets</b> listed above

# MHDRA Lessons Learnt

(Inception Phase Mid-June to Mid-September 2020)

**Provide opportunities for continuous communication and stakeholder participation** to build confidence and trust in the process and product.



# MHDRA Lessons Learnt

(Inception Phase Mid-June to Mid-September 2020)

**Provide opportunities for continuous communication and stakeholder participation** to build confidence and trust in the process and product.

**Be ready to adapt scope** in consultation with partners and stakeholders.



# MHDRA Lessons Learnt

(Inception Phase Mid-June to Mid-September 2020)

**Provide opportunities for continuous communication and stakeholder participation** to build confidence and trust in the process and product.

**Be ready to adapt scope** in consultation with partners and stakeholders.

**Finetune risk assessment outputs** to the purpose, information needs, understanding of target groups.

# MHDRA: 4 Key Lessons

(Inception Phase Mid-June to Mid-September 2020)

**Provide opportunities for continuous communication and stakeholder participation** to build confidence and trust in the process and product.

**Be ready to adapt scope** in consultation with partners and stakeholders.

**Finetune risk assessment outputs** to the purpose, information needs, understanding of target groups.

**Build on and invest time to strengthen government ownership:** Use and feed into supportive policy space; technical and decision-making levels; establish consensus across sectors.