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

MHDRA Lessons Learnt

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

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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.