Namibia's First Comprehensive Risks Profile of Natural Hazards and Selected Diseases

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Natural disasters are increasing rapidly in frequency and intensity globally under the influence of climate change. The usual emergency responses to such events have become costly and unsustainable to responders, such as humanitarian and governmental agencies, and the affected communities and individuals. For example, about 400 natural disasters were recorded worldwide in the Emergency Events Database in 2023, compared to the annual average of 370 disasters between 2003 and 2022 (EMDAT, 2024). In 2023, over 86 000 people lost their lives because of natural disasters, 93.1 million people were affected, and the economic losses amounted to US$ 202.7 billion (EMDAT, 2024). These statistics exclude data from the heatwaves that had record-breaking temperatures; heat-related mortality in 2022 exceeded 61 500 deaths in Europe alone (EMDAT, 2024). Essentially, the global challenges of unprecedented proportions led the United Nations Office for Disaster Risk Reduction (UNDRR) to catalyse in 2015 the first major agreement to reduce, prevent, and respond to disaster risks. This global agreement with a 15-year framework, is termed the Sendai Framework. Its purpose is to provide member states with actionable insights and recommendations to protect developmental gains from the risk of disasters and help build resilient nations (UNDRR, 2015).

Namibia, as a signatory to the Sendai Framework, is threatened by a multitude of natural disasters. These devastating events include the floods of 2008 – 2011 that cost more than N$ one billion in damages and claimed over 100 human lives, as well as the countrywide drought of 2019, exceeding N$ one billion in cost and leading to the loss of 100 000 livestock. In conformity with the Sendai Framework, Namibia subsequently embarked on the journey to profile the risks of and vulnerability to natural disasters and selected diseases within its borders. Risk profiling is a prerequisite for shifting from disaster management, which is unplanned, expensive,

and whose costs escalate over time, to risk management. This profiling was spearheaded by the Office of the Prime Minister, with technical capacity provided through collaborative efforts by domestic institutions including the University of Namibia, the Namibia Statistics Agency (NSA), the Ministry of Mines and Energy, and the Ministry of Agriculture, Water and Land Reform. This collaborative domestic effort culminated in a book of 180 pages, entitled *Risks Profile of Natural Hazards and Selected Diseases in Namibia*, covering 14 natural disasters and selected diseases.
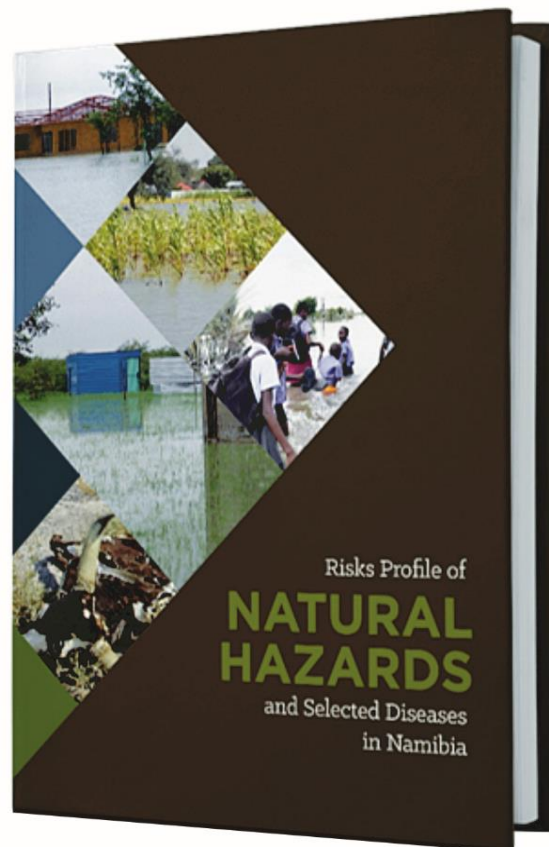
Initially, a total of 21 natural disasters and selected diseases were targeted for profiling. However, due to a lack of data, the coverage was limited to drought, flood, wildfire, heatwave, frost, windstorm, lightning, seismic, sea level rise, malaria, COVID-19, HIV/AIDS,

diarrhoea, and foot and mouth disease. The study used the indicator-based approach, which takes into account hazard, exposure to hazard, vulnerability to hazard and capacity to adapt (van Western and Greiving, 2017). The analyses exploited Geographic Information Systems (GIS) for enriched spatial output at an unprecedented level of detail, based on enumeration areas representing the smallest geographical units demarcated by NSA for collecting official demographic data for the Population and Housing Census. Compared to only 14 regions or 121 constituencies, the country is parcelled into more than 5000 enumeration areas averaging 16 000 ha, providing a much better data resolution.

From the perception of consulted stakeholders, risk hazards were discerned as devastating (e. g. drought and COVID-19), bittersweet (e. g. flooding), oblivious or normalised (e. g. heatwave, seismic), emerging (e. g. lightning) or managed (e. g. malaria). The perceptions towards drought and COVID-19 were largely fuelled by their widespread occurrence and unpredictability. Despite its destructive impact, flooding on the other hand brings along some benefits, such as a variety and abundance of fish and water.

The impact of heatwaves is superimposed on the arid to semi-arid climate of the country. This makes it evasive to quantify or discern their impact, which therefore is often normalised. Similarly, the low magnitude of earthquakes in the country overshadowed their hidden economic cost through insidious instability of buildings and other infrastructure that may be often and wrongly attributed to poor workmanship. Lightning, which is caused by instability in the atmosphere due to a combination of warm air near the ground and colder air above, is intensifying due to climatic change. Unfortunately, the lack of awareness and limited safety measures, especially in rural communities, make it an emerging hazard, which has been reported more frequently in recent years. The efforts made thus far in the country to contain malaria hide the insecticide resistance of mosquitoes, and its importation from neighbouring countries. The success of malaria management is thus transient, because of the underlying vulnerability as illustrated by the widespread outbreak in 2024.

The unmasking of these risk hazards in the country positions Namibia well to formulate her resilience strategies. The use of enumeration areas made the risk maps scalable for authorities at constituency or regional levels, which facilitates and enhances local planning, accordingly. Regular updating of the risk levels with demographic and auxiliary input data will make the book a living instrument for an effective multi-hazard, early warning system in the country. Therefore, the stage is set for Namibia to embark on a journey of shifting from disaster management to managing risks, which will save lives and diminish the economic losses associated with natural disasters over time.

Acknowledgements

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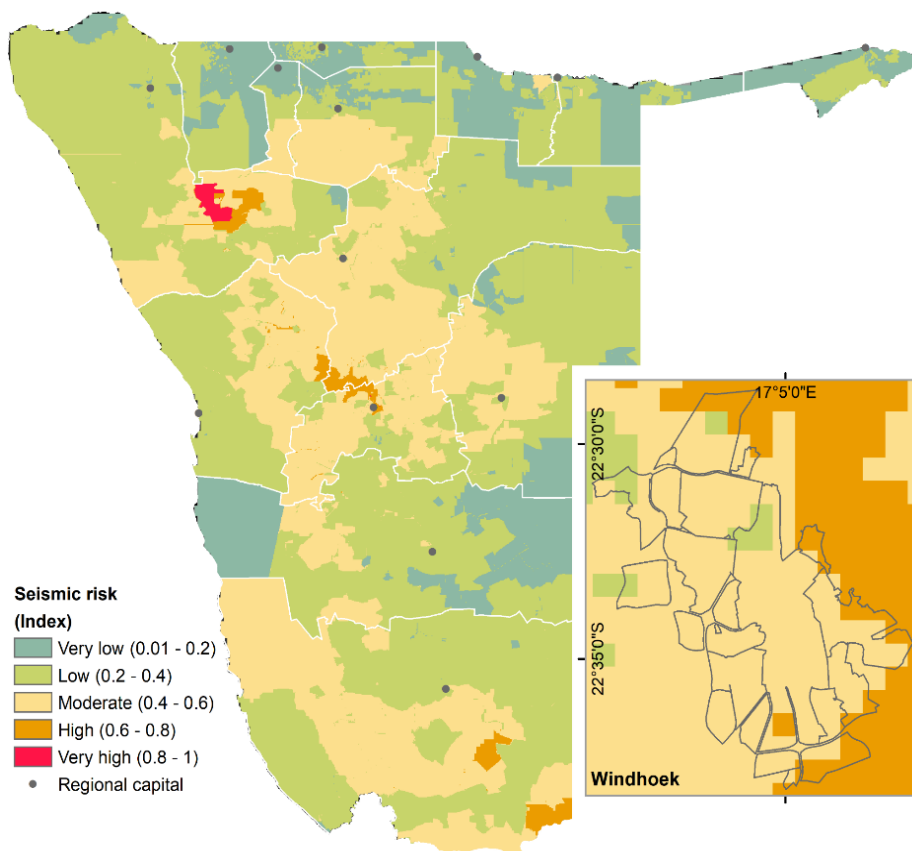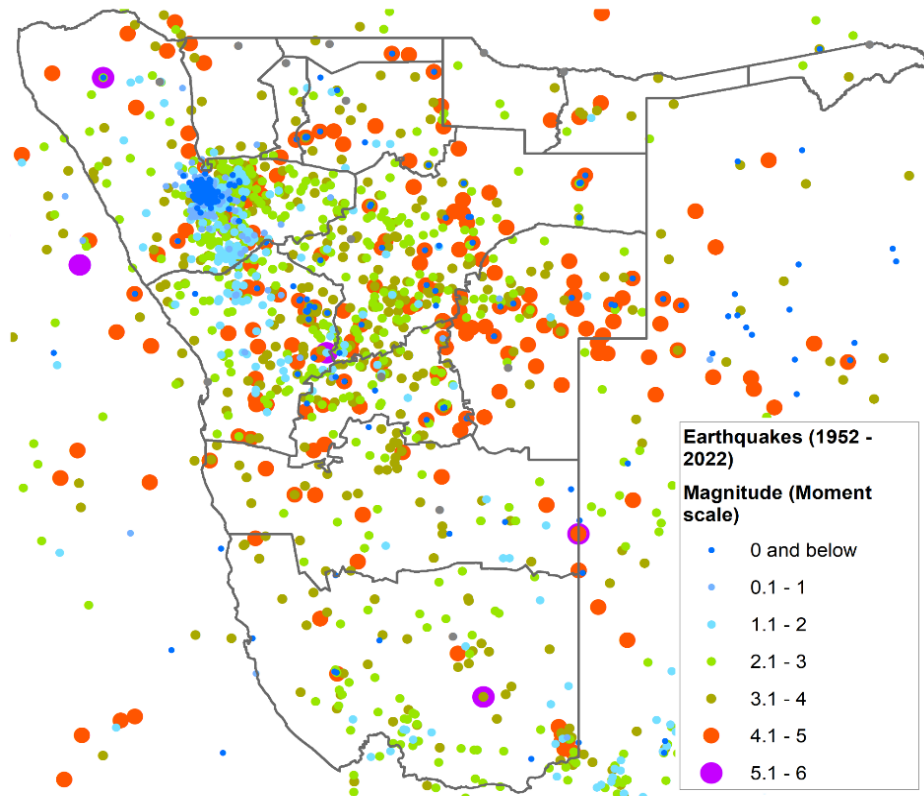
Earthquake occurrence (top) and risk (bottom) in Namibia