Case Study: Tropical Cyclone Evan – Samoa

Assessing Non-Economic Loss and Damage caused by Tropical Cyclone Evan in Samoa – Understanding the gaps in humanitarian response, recovery and reconstruction financing and financing gaps to meet climate change induced loss and damage needs.

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Context

On 13 December 2012, Tropical Cyclone Evan (TC Evan) struck Samoa with sustained winds of up to 185 km per hour, and wind gusts of up to 230 km per hour. It caused widespread damage in the capital city, Apia, and was considered the worst tropical cyclone to affect Samoa since Cyclone Val in 1991.[1] The cyclone killed at least five people and displaced over 7,500 people. [2] In addition, power plants, water facilities and distribution systems were badly damaged and disrupted nationwide and there was widespread damage to public services, buildings, roads, agriculture, and communications infrastructure. The total economic damages and production losses were estimated to exceed US $210 million, equivalent to about 30% of the country's GDP in 2011.

The event triggered a humanitarian response, as well as recovery and reconstruction financing, underpinned by a Post-Disaster Needs Assessment conducted by the Government of Samoa. While the PDNA comprehensively considered damages and losses to tangible and quantifiable assets in Samoa, including infrastructure, housing, and productive services such as agriculture and fisheries, it was limited in the consideration given to intangible, non-economic losses. Using TC Evan as an example, this case study will consider the dominance of the economic lens when characterising climate-induced impacts in the Pacific, and unpack the challenges faced when addressing non-economic loss and damage from climate change impacts.

The response

Following the immediate response to TC Evan, a Post-Disaster Needs Assessment (PDNA) was conducted by the Government of Samoa (GoS) quantifying the damage and loss incurred from the cyclone using the damage and loss assessment (DALA) methodology. The PDNA formed the basis of a comprehensive recovery plan designed by the GoS, which provided medium to longer term recovery and rehabilitation support. Additional projects including the Tropical Cyclone Recovery and Rehabilitation Programme (TCRRP), the

[1] Fakhruddin, B.S. and Schick, L., 2019. Benefits of economic assessment of cyclone early warning systems-A case study on Cyclone Evan in Samoa. *Progress in Disaster Science*, *2*, p.100034.
[2] Samoa: Post-Disaster Needs Assessment – Tropical Cyclone Evan 2012 https://www.gfdrr.org/sites/default/files/publication/SAMOA_PDNA_Cyclone_Evan_2012_0.pdf

Enhanced Road Access Project and the Agriculture and Fisheries Cyclone Response Project were also developed to address components of the recovery plan.

The recovery plan proposed by the GoS was costed out to US$206 million. Funding was contributed by bilateral and multilateral donors, including the World Bank, New Zealand, Australia, the Asian Development Bank, the European Union, the United Kingdom and others.

Funding was provided through several modalities such as budget support and a program approach. Different modalities were used due to the capacity of the Ministry of Finance to administer the funds, the preferences of the donor, and the needs that were being addressed. Ideally, the advantages of budgetary support as a modality are that it supports the government's own policy, program and systems; avoids duplication of activities within the sector; promotes ownership, alignment and harmonisation; and can promote dialogue at a more strategic level. In practice, the recovery plan moved more towards a programme approach due to the number of donors involved with its delivery.

The focus of the recovery and reconstruction funds was on physical assets, materials and tools for farmers and fishers, and tourism operators. Houses for some families were also built and a building code was developed, however intangible losses or non-economic damages and losses were not funded under the recovery plan.

Gaps

A PDNA is triggered only when a disaster is declared and DALA is a disaster focused methodology that does not take into consideration the impacts of slow onset events. Other extreme events such as flooding caused by a tropical depression is not considered a disaster and therefore a PDNA is not used. Slow onset events that do not meet the criteria for declaration of disasters or state of emergencies are not assessed and impacts are not considered for assistance, leaving the financial burden of the impacts of slow onset events with the affected households.

In the case of TC Evan, the PDNA assessed the impact of the event on most sectors, including, to a certain extent, an assessment of impacts on intangible assets such as cultural heritage, environmental services, and psychosocial health. Efforts were made by GoS to include these non-economic losses and damages in the assessment, even though the DALA methodology did not have the flexibility to effectively capture the extent of these non-economic losses and damages (NELDs). While some NELDs were assessed in the PDNA, they were not explicitly included in the recovery plan and did not form a part of the programmes delivered by donors.

When considering cultural heritage, for example, the PDNA quantified the damage done to physical cultural heritage sites such as the physical damage to the traditional Samoan *fale* in Vaimoso, damage to the Museum of Samoa, and lost *vakas* (outrigger canoes) owned by the Samoa Ocean Canoe Association. The assessment briefly mentioned family graves that were affected by the event, noting the 'physical and emotional losses to the affected persons and families', however, the relocation or restoration of family graves was not included in the cost

of recovery. While these losses and damages were attempted to be quantified, cultural heritage does not feature in the recovery plan and was not explicitly funded in the recovery and rehabilitation funding provided by donors.

The assessment made attempts at capturing some non-economic losses and damages, however it could not effectively consider the impacts of relocation, loss of livelihoods or loss of life caused by the cyclone. In the PDNA survey, some families and individuals expressed interest in relocating to less disaster-prone locations, "Yes, I would like to relocate, but I am not sure where to go" - Male resident, Falefa, Anoama'a (rural)[3], however relocation support was not provided under the recovery plan.

There are numerous barriers to relocation including extensive negotiations needed for acquiring new land, and the costs associated with rebuilding houses, replanting crops and potentially seeking a new source of income. Others felt like relocation was not an option due to ties with their land, "We can't relocate—this is our land from our ancestors" - Male resident, Siumu West, Siumu (rural). When relocating to a new location, people may lose their ancestral connection to a place, as well as losing ties with their neighbours, church, families and friends they grew up and lived with over decades/years. If relocating to a newly established area there is a requirement for the government to provide essential services, such as power, roads, communications and water.

Funding for relocation and the associated social impacts were not considered under the recovery plan for TC Evan and individuals who were interested in relocating did not have the financial or societal support to relocate themselves. The recovery plan emphasised the need to 'build back better' recognising that relocation is sometimes a necessary option to minimise further impacts in future, however the policy void and lack of funding meant it was not a viable option.

Conclusion

TC Evan was a devastating event in Samoa and the response to the cylone highlights the tendency to only respond to economic impacts after a disaster. The PDNA was an important process to understand the extent of economic damages across the country and was integral to the coordination of recovery financing. The limitations of the PDNA and DALA methodology to account for non-economic loss and damage meant that intangible assets were not comprehensively considered and were excluded from the recovery plan and reconstruction financing. Loss and damage funding arrangements that can be applied during slow onset events and that capture non-economic losses and damages are required to ensure households, communities and countries can truly build back better and effectively address all aspects of loss and damage resulting from climate change impacts.

[3] Samoa: Post-Disaster Needs Assessment – Tropical Cyclone Evan 2012
https://www.gfdrr.org/sites/default/files/publication/SAMOA_PDNA_Cyclone_Evan_2012_0.pdf