



**OXFAM**  
Australia

## **MEDIA BRIEF**

# **ESCALATING EMERGENCIES: 20 YEARS OF PACIFIC CLIMATE DISASTERS**



In 2022, the village of Molpoe in Vanuatu was hit by a devastating landslide caused by torrential rain, which has become more frequent due to extreme weather. The landslide destroyed many homes and plantations that the people relied on for their livelihoods. Credit: [Ivan Utahenua/Oxfam](#)

## SUMMARY OF KEY FINDINGS

The cost of climate change is already escalating in the Pacific, where the economic and human impacts have rapidly increased in the past decade.

This report finds:

- Costs from climate disasters in the Pacific have increased eight-fold in the last decade, compared to the previous decade. Costs have surged in the last two years, reaching a high of AUD\$7.3 billion.
- The Pacific has had to endure annual costs resulting from climate disasters averaging AUD\$1.3 billion over the last decade, a seven-fold jump when compared to the decade previous; annual costs averaged AUD\$180 million between 2004 and 2013.
- The average yearly GDP loss that Pacific Island countries are experiencing as a result of climate disasters has increased from 3.2% from 2004 to 2013 to 14.3% last decade, an over four-fold jump in average loss. By comparison, Australia's costliest disaster in recent memory, the QLD-NSW floods of 2022, resulted in damages that were 0.4% of GDP that year.
- The average number of people impacted by climate disasters in the Pacific has increased 700% in the last decade, compared to the previous decade. Between 2004 and 2013, 80,300 people on average were impacted by climate disasters each year. In the last decade, this yearly average increased to 607,000 people.

Right now, Australia's climate finance remains far below the scale of need in the Pacific and well below our fair share. With total and average costs from climate disasters soaring from hundreds of thousands to billions over the last two decades, Australia only committed AUD\$265.9 million in climate finance to the Pacific in 2022-23.<sup>1</sup> If Australia is to stand shoulder-to-shoulder with the Pacific at COP29, and indeed credibly partner with the Pacific to host COP31 in Australia in 2026, we must step up on the make-or-break issue at COP29 – setting a new global climate finance goal for developing countries.

Australia must support setting a new global finance goal that reflects the true needs of developing nations, and ensure loss and damage is included in the new goal, as demanded by Pacific Island countries.

“If we save the Pacific, we save the world.”

– UN Secretary-General António Guterres at the Pacific Island Forum<sup>2</sup>

## INTRODUCTION

Climate breakdown is unfolding before our eyes. The costs of climate disasters continue to escalate, and lives and livelihoods are being lost forever. Pacific nations bear a particularly unfair share of the damage. While only responsible for a mere 0.01% of global carbon dioxide emissions, Pacific Island countries are on the frontlines of climate impacts, facing increased exposure to disasters, including tropical cyclones and floods, as well as slow-onset impacts such as droughts, loss of fish stocks and sea level rise.<sup>3</sup> These impacts are damaging homes, making food harder to grow and gather, and impacting cultural knowledge and spiritual wellbeing. Their geographical and socio-economic vulnerabilities make recovery challenging, and global support to rebuild, recover and transition falls far short of need.

In this media brief, Oxfam Australia reviews the last 20 years of climate related disasters in the Pacific highlighting the escalating trend in the intensity of disasters, the disaster costs and the number of people affected.

## ESCALATING CLIMATE DISASTERS IN THE PACIFIC

### ECONOMIC LOSSES FROM CLIMATE DISASTERS

Oxfam research shows that disaster damages and costs have surged from hundreds of thousands to billions over the 20-year period from 2004 to today.

Over the last 10 years, the Pacific has had to endure annual costs resulting from climate disasters averaging AUD\$1.3 billion, a seven-fold jump when compared to the decade previous; annual costs averaged AUD\$180 million between 2004 and 2013. Total costs from climate disasters have increased eight-fold in the last decade, compared to the previous decade. Damages were particularly devastating in 2022–2023, where costs in Pacific countries reached a 20-year disaster damage high of AUD\$7.3 billion (**Figure 1**).

Contextualising these losses against Pacific country GDPs, the impacts of billions in losses to these low-income economies can be more fully appreciated. Between 2004 and 2013, climate-related disasters have caused yearly average losses equivalent to 3.2% of Pacific Island GDPs. In the last decade, this average has increased to 14.3%, a four-fold jump in costs for already vulnerable, debt-burdened island economies. Take Vanuatu for example, where in two separate years, 2015 and 2020, damages from climate disaster events represented almost 80% of its national GDP.<sup>4</sup> This has been economically devastating for this country. If recovery costs were factored in, the share of GDP that Pacific countries are having to dedicate to responding to climate change soars even higher.

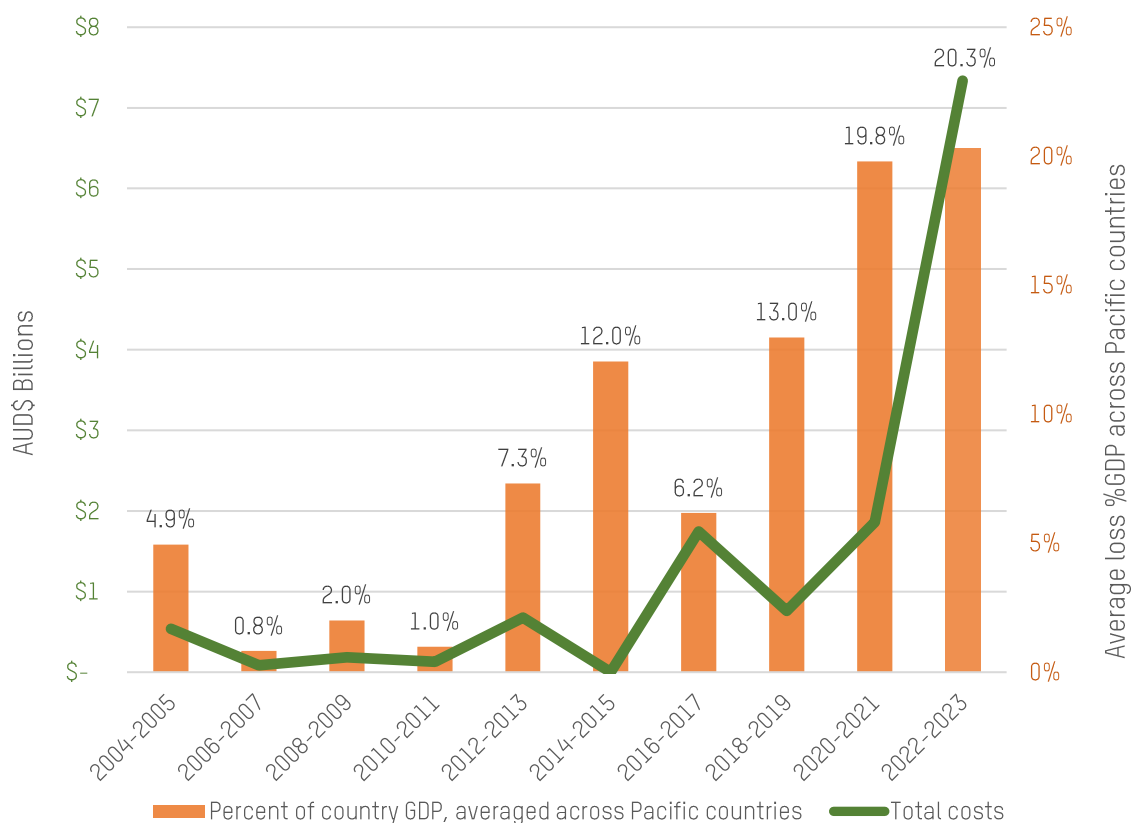
For context, Australia's most expensive climate disaster, the 2022 Northern River floods in Queensland and New South Wales caused damages representing 0.4% of GDP.<sup>5</sup>

In looking at these findings, it is critically important to note that there are data gaps for certain types of disasters such as landslides and floods. Furthermore, there is a lack of

data for numbers of people affected by slow-onset events (for example, loss of fish stocks due to rising sea water temperatures and increasing ocean acidity), or higher frequency, lower intensity events (such as sea level inundation of homes and agriculture during king tides).<sup>6</sup> If we added in costs of these events, the actual damage that Pacific countries are having to endure is even higher.

The Pacific, now more than ever, requires the resources to recover from past disasters, manage impacts as they come and prepare for future disasters.

**FIGURE 1: PACIFIC CLIMATE DISASTER COSTS AND AVERAGE LOSS OF GDP FOR COUNTRIES IMPACTED, AVERAGED ACROSS THE PACIFIC (\$AUD BILLIONS)**



Source: EM-DAT, World Bank and Oxfam

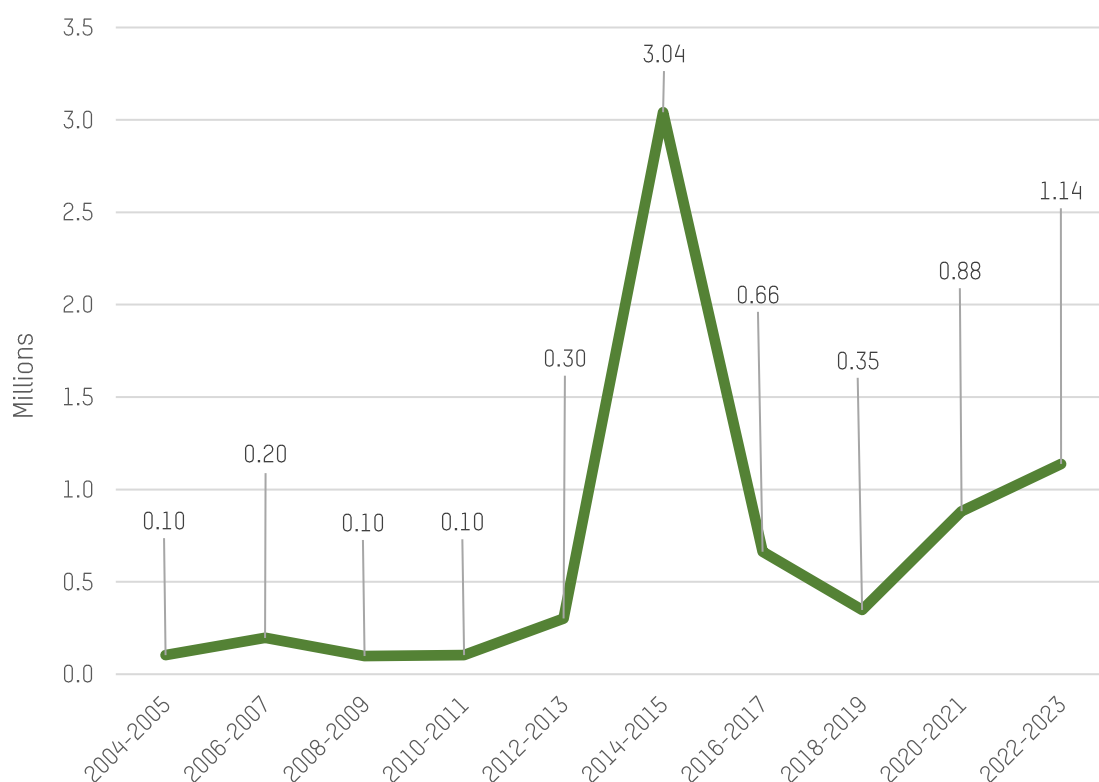
## PEOPLE IMPACTED BY CLIMATE DISASTERS

The number of people affected by climate disasters is rising. The number of people impacted by climate disasters on average per year in the Pacific has increased 700% in the last decade, compared to the previous decade. Between 2004 and 2013, 80,300 people were on average impacted by disasters each year (**Figure 2**). In the last 10 years, this yearly average has increased to 607,000 people. The years 2014-15 are a notable outlier, marked by the devastation of Category 5 Tropical Cyclone Pam, and a severe drought in 2015 affecting communities across Papua New Guinea, Fiji, Solomon Islands, Tonga, Samoa, Marshall Islands, and Palau.<sup>7</sup> These two disasters alone impacted almost three million people.<sup>8</sup> Even excluding this outlier year, there is a clear upward trend in the number of people impacted by major disasters.

In a region numbering 14 million, climate disasters have affected 6.9 million Pacific Islanders in the last 20 years, not accounting for individuals and households who are affected by multiple disasters.<sup>9</sup>

While these major disasters are the most telling examples of impacts on island communities, aforementioned data gaps around higher frequency, lower intensity as well as slow-onset events mean that, as with cost estimates, the number of people affected by climate disasters is much higher in reality. What is clear is that someone in the Pacific has experienced or been affected by a climate disaster at least once in the last 20 years.

**FIGURE 2: NUMBER OF PEOPLE AFFECTED BY CLIMATE DISASTERS IN THE PACIFIC**



Source: EM-DAT and Oxfam

## TYPES OF DISASTERS

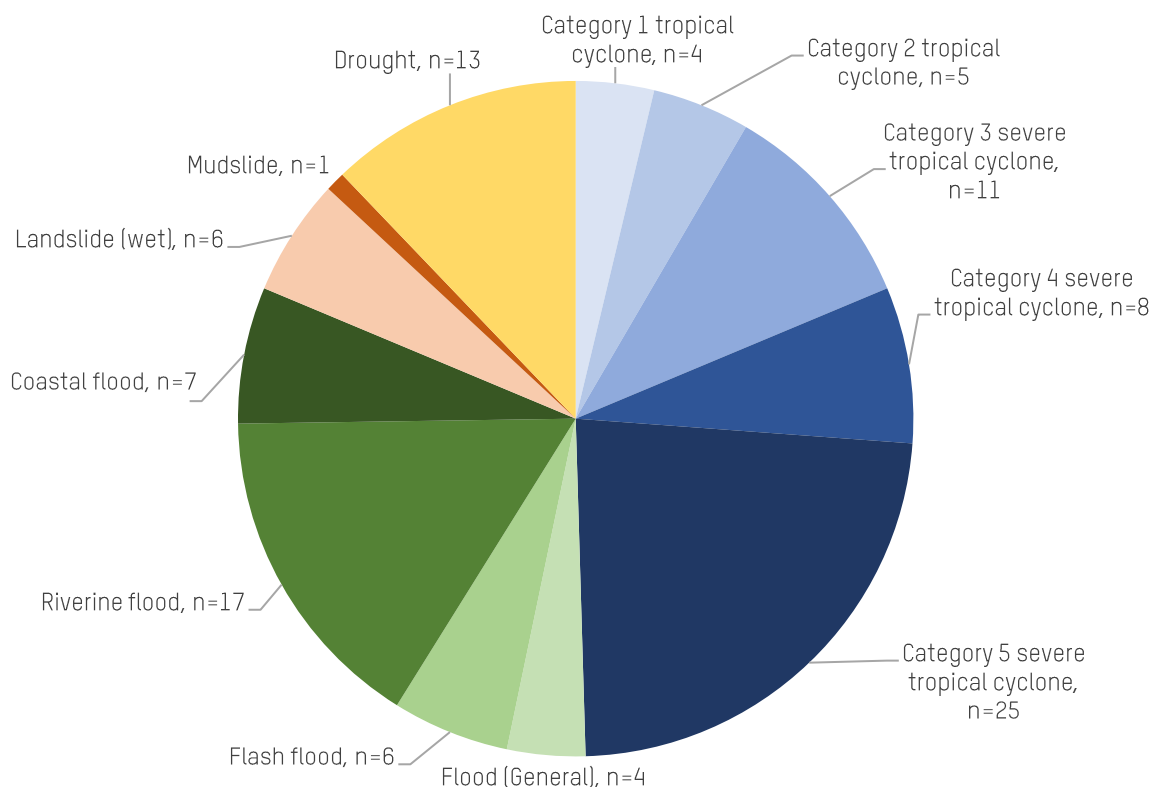
Tropical cyclones are the most frequent and damaging disasters in the Pacific. They cause widespread destruction, affecting communities and infrastructure. Over the last 20 years, the Pacific experienced 53 disasters caused by a tropical cyclone, causing AUD\$13.9 billion in losses (**Figure 3**).<sup>10</sup> Pacific Island countries have been hit by at least one Category 5 tropical cyclone every year on average since 2004.<sup>11</sup>

The Pacific also suffers from prolonged droughts, primarily driven by El Niño events. Over the last 20 years, EM-DAT has recorded 13 droughts, affecting 2.8 million people and resulting in water shortages, food insecurity, agricultural disruption, further eroding livelihoods and threatening the sustainability of local economies (**Figure 3**).<sup>12</sup> The

Marshall Islands have been particularly susceptible to droughts, having experienced four in the last 15 years, including one affecting the atoll island nation right now.<sup>13</sup>

Landslides and floods, often triggered by tropical cyclones, storm surges and heavy rainfall linked to climate change, cause extensive damage and loss of life, particularly in countries such as Papua New Guinea. However, the full extent of these disasters is often underreported, leading to an underestimation of their human and financial toll.

**FIGURE 3: PACIFIC CLIMATE DISASTERS OVER THE LAST 20 YEARS**



Source: EM-DAT and Oxfam

### CASE STUDY: TWIN CYCLONES JUDY AND KEVIN IN VANUATU

Vanuatu is one of the most vulnerable countries in the world to disasters. It is exposed to a range of hazards including tropical cyclones, floods, and droughts, as well as non-climate disasters such as earthquakes and volcanic activity. Climate change intensifies the severity of tropical cyclones. In the last five years, Vanuatu has experienced three Category 5 cyclones, with two of them occurring just in the last year.<sup>14</sup>

In late February to early March last year, twin cyclones struck Vanuatu’s shores — Category 4 Cyclone Judy and Category 5 Cyclone Kevin, hitting just two days apart.<sup>15</sup> The country was still recovering from the devastating effects of Category 5 Cyclone Harold in 2020. On top of these cyclones, Vanuatu was hit by twin earthquakes of magnitudes 6.5 and 4.3 shortly after, compounding the emergency situation.<sup>16</sup> Altogether, over 80% of the population was affected by cyclone winds, heavy rainfall, flooding, and storm surges,

which caused widespread destruction to homes, schools, and critical infrastructure.<sup>17</sup>

The combined damage from these events amounted to AUD\$656 million, with recovery needs estimated at AUD\$1.2 billion, an astonishing 69% of Vanuatu's GDP.<sup>18</sup> Despite the scale of devastation, Vanuatu received minimal international support. Australia has so far provided AUD\$12.8 million in assistance — just a fraction of the AUD\$656 million in damages incurred.<sup>19</sup>

Seven months later, Vanuatu was once again hit by another Category 5 cyclone, Cyclone Lola. Outside of the regular cyclone season, Lola was the strongest off-season cyclone to hit the region in recorded history, and hit while the country was still recovering from the twin cyclones earlier in the year.<sup>20</sup> As we enter a new 2024-2025 cyclone season, the intensity and unpredictability of these climate disaster events will continue to increase, as long as developed countries continue to stall action on the scale required and enable climate breakdown to worsen.

## THE FAILURE OF GLOBAL CLIMATE FINANCE COMMITMENTS

Vanuatu's experience reflects the broader inequities in regional and global climate finance. While developed nations have the resources to fund extensive recovery efforts, Pacific nations are left struggling with overwhelming costs that they cannot cover. Recovery takes years, and often the next disaster hits before they have had a chance to build back properly, compounding the impacts. The long-term economic impacts are severe, with public debt rising and essential services like education and healthcare disrupted for years.<sup>21</sup> A recent report from the International Institute for Environment and Development has found that Papua New Guinea has spent eight times as much on servicing debts as it has received in climate finance.<sup>22</sup>

At the United Nations climate change negotiations in 2009, countries agreed to set global climate finance goals for developed countries to provide funds to developing countries to support them to transition to renewable energy and adapt to climate impacts. The goal agreed was USD\$100 billion a year and applied between 2020-2025. It was met for the first time in 2022, but primarily through loans and overly generous categorisation which inflate the 'true value' of finance actually delivered.<sup>23</sup> Oxfam calculates the true value to be between USD\$28 and \$35 billion.<sup>24</sup>

Australia's climate finance to low-income countries during this time has been grossly insufficient and contributed to the failure to meet the goal in real funds. Australia pledged AUD\$3 billion between 2020 and 2025 (AUD\$600 million on average per annum), which is a fraction of what is needed to address the scale of climate-related challenges.<sup>25</sup> When considering climate finance just for the Pacific, that figure shrinks even further; Australia committed AUD\$265.9 million in climate finance for 2022-23, a drop in the ocean when total disasters costs for the same period equalled AUD\$7.3 billion, and averaged AUD\$1.3 billion over the decade.<sup>26</sup> Even more egregious, this climate finance is rebadged aid budget funds and not new money to meet the scale of this new challenge.<sup>27</sup> Australia's fair share of climate finance, based on its historical

emissions and capacity to pay, is AUD\$4 billion per annum.<sup>28</sup> When countries like Australia fail to pay our fair share, targets are not met (or are met with debt creating loans) and least developed countries and small island developing states suffer the most. Without adequate funding, these countries cannot implement the necessary measures to protect their communities, rebuild after disasters, and adapt to the escalating impacts of climate change.

At COP29 UN climate negotiations this year, governments will decide on a make-or-break new goal for climate finance for developing countries. It must be a strong goal to ensure impacted countries can recover from climate disasters and transition to renewable energy, keeping 1.5 degrees alive.

For a more detailed explanation of the new goal and the key recommendations for this goal, please refer to our report published in July 2024 '[Seizing the Moment: A new climate finance goal that delivers for the pacific](#)'.

## RECOMMENDATIONS

**Increase Climate Finance Ambition:** The New Collective Quantified Goal (NCQG) on climate finance, to be finalised at COP29, must be scaled to reflect the true needs of our Pacific Island neighbours and other developing nations, with a strong public finance core.

**Include loss and damage in the new goal:** Australia must support the calls of the Pacific for loss and damage to be included in the goal, so there are funds for disaster recovery, not just mitigation of emissions

**Ensure Fair Contributions:** Australia and other developed countries must commit to paying their fair share of the new climate finance goal. Rich countries like Australia must provide new funding, in addition to the aid budget, to tackle the climate crisis.

**Make Polluting Corporations Pay:** Australia must make the big polluting corporations pay for their climate damages through a carbon pollution levy. This levy will drive the clean energy transition in Australia, and funds raised from the levy must go to supporting impacted communities in Australia and our region.



## METHODOLOGY NOTE

This research utilises the EM-DAT database, maintained by the Centre for Research on the Epidemiology of Disasters (CRED) at the University of Louvain.<sup>29</sup> EM-DAT is a global database that systematically compiles data on the occurrence and impacts of disasters worldwide, cataloguing over 26,000 events.<sup>30</sup> EM-DAT data is collected from a wide variety of sources including local, national and multilateral organisations (see a full list of sources [here](#)), and defines events as ‘disasters’ if they meet any one of the following criteria:

- At least ten deaths (including dead and missing),
- At least 100 people affected (including those injured or rendered homeless), or
- A call for international assistance or an emergency declaration.<sup>31</sup>

The list highly underestimates the true level of damage and number of affected peoples caused by climate-induced disasters. Firstly, low-intensity but high-frequency disasters that do not meet EM-DAT’s mortality or international appeal thresholds — are not captured. These smaller events greatly frontline communities, having cumulative effects over time. Additionally, by focusing on ‘disasters’, the study excludes slow-onset climate events, which are equally significant in assessing climate impacts. Furthermore, because this brief’s scope is limited to climate-related disasters, it excludes volcanic eruptions, earthquakes, landslides caused by seismic activity and other geological phenomena. However, again, it is worth noting that these phenomena can overlap with climate-induced disasters and mutually compound the effects of each other on populations. For example, after Cyclones Judy and Kevin hit Vanuatu in early 2023, the country was struck by twin 6.5 and 4.3 magnitude earthquake within days.

To provide a more comprehensive picture, EM-DAT data on affected populations and economic costs were supplemented with original research from other reputable sources. These sources include Post-Disaster Needs Assessment (PDNA) reports,<sup>32</sup> reports from national and regional agencies,<sup>33</sup> insurance reports, particularly the yearly iterations of AON’s Climate and Catastrophe Insights Report,<sup>34</sup> local and regional media reports,<sup>35</sup> and situation reports from first-responder civil society organisations.<sup>36</sup> For the latter, reports from the International Federation of Red Cross and Red Crescent Societies’ (IFRC) Disaster Response Emergency Fund were particularly instructive.<sup>37</sup>

All economic damage estimates are inflation-adjusted to 2023 USD to ensure consistency and highlight the scale of losses in real terms. For the media brief itself, all figures have been converted to AUD unless stated otherwise, using a conversion rate of 0.66 US cents to 1 Australian dollar. This is based on the 2023 average annual exchange rate.<sup>38</sup>

To calculate climate disaster losses as a percentage of country GDP, the total of economic losses each year in each country was then compared with their respective GDP in current prices, listed in the World Bank’s World Development Indicators.<sup>39</sup> Once loss ratios were determined for each country and each year, they were averaged across countries and across years to determine average loss rates in the Pacific. There were some Pacific territories for which EM-DAT economic loss data was available but World

Bank GDP data was not, and hence their loss ratios are not included in the regional calculations. These include the Cook Islands, Tokelau, Niue, Wallis and Futuna and Guam (only for 2023). These countries were thus excluded from the country GDP analysis but it is worth noting that their losses also represent high percentages of their GDP.

In terms of cyclone categorisation, EM-DAT does not classify cyclones by intensity. To address this, cyclone intensity data was web-scraped from available Wikipedia entries using the *rvest* package in R.<sup>40</sup> Most cyclones were classified using the Australian tropical cyclone intensity scale, which predominates for cyclones that originate in the Pacific.<sup>41</sup> A small number of cyclones originated outside of the South Pacific basin and were categorised as typhoons using the Saffir-Simpson Hurricane Wind scale (SSHWS).<sup>42</sup> For simplicity in visualisation, cyclone categories from both scales were merged — for instance, a Category 4 typhoon on the Saffir-Simpson scale is treated the same as a Category 4 tropical cyclone on the Australian scale. We acknowledge the significant differences in how each method measures and categorises cyclone intensity.

## ENDNOTES

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<sup>2</sup> “‘The World Needs Your Leadership’, Guterres Tells Pacific Islands Forum,” UN News, August 25, 2024, <https://news.un.org/en/story/2024/08/1153541>.

<sup>3</sup> Mycoo, M et al., “Chapter 15: Small Islands,” in *Climate Change 2022 – Impacts, Adaptation and Vulnerability: Working Group II Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, 1st ed. (Cambridge University Press, 2023), <https://doi.org/10.1017/9781009325844>; Murray Ellis, “Greenhouse Gas Mitigation in Countries Participating in the Pacific Islands Climate Change Assistance Programme (PICCAP),” Government Publication (Apia, Samoa: South Pacific regional Environment Programme (SPREP), 2000), <https://www.sprep.org/attachments/Publications/CC/2.pdf>.

<sup>4</sup> Centre for Research on the Epidemiology of Disasters (CRED)/UC Louvain, “EM-DAT” (Brussels, Belgium, 2024), <https://public.emdat.be/>.

<sup>5</sup> World Bank Open Data, “GDP (Current US\$) - Australia,” World Bank Open Data, 2023, <https://data.worldbank.org>; Michael Read, “Australia’s Floods Were Fourth Most Costly Global Disaster in 2022,” Australian Financial Review, January 10, 2023, <https://www.afr.com/policy/economy/australia-s-floods-were-fourth-most-costly-global-disaster-in-2022-20230110-p5cbhx>.

<sup>6</sup> Sadeqh Ahmadi Mazhin et al., “Worldwide Disaster Loss and Damage Databases: A Systematic Review,” *Journal of Education and Health Promotion* 10 (September 30, 2021): 329, [https://doi.org/10.4103/jehp.jehp\\_1525\\_20](https://doi.org/10.4103/jehp.jehp_1525_20).

<sup>7</sup> Centre for Research on the Epidemiology of Disasters (CRED)/UC Louvain, “EM-DAT.”

<sup>8</sup> Ibid.

<sup>9</sup> Australian Government Department of Foreign Affairs and Trade, “Papua New Guinea Country Brief,” accessed October 30, 2024, <https://www.dfat.gov.au/geo/papua-new-guinea/papua-new-guinea-country-brief>; Centre for Research on the Epidemiology of Disasters (CRED)/UC Louvain, “EM-DAT”; World Bank, “Pacific Islands,” Text/HTML, World Bank, accessed October 30, 2024, <https://www.worldbank.org/en/country/pacificislands>.

<sup>10</sup> Centre for Research on the Epidemiology of Disasters (CRED)/UC Louvain, “EM-DAT.”

<sup>11</sup> Ibid.

<sup>12</sup> Centre for Research on the Epidemiology of Disasters (CRED)/UC Louvain, "EM-DAT"; Viliamu lese et al., "Historical and Future Drought Impacts in the Pacific Islands and Atolls," *Climatic Change* 166, no. 1 (May 18, 2021): 19, <https://doi.org/10.1007/s10584-021-03112-1>.

<sup>13</sup> International Federation of Red Cross and Red Crescent Societies, "Drought in Republic of Marshall Islands 2024 - DREF Operation MDRMH004," Situation Report (International Federation of Red Cross and Red Crescent Societies, March 11, 2024), <https://reliefweb.int/report/marshall-islands/drought-republic-marshall-islands-2024-dref-operation-mdrmh004>; Centre for Research on the Epidemiology of Disasters (CRED)/UC Louvain, "EM-DAT".

<sup>14</sup> Centre for Research on the Epidemiology of Disasters (CRED)/UC Louvain, "EM-DAT."

<sup>15</sup> Department of Strategic Policy, Planning and Aid Coordination, "Post Disaster Needs Assessment Vanuatu Tropical Cyclones Judy and Kevin 2023" (Port Vila: Ministry of the Prime Minister, Government of Vanuatu, July 26, 2023), <https://recovery.preventionweb.net/publication/post-disaster-needs-assessment-vanuatu-tropical-cyclones-judy-and-kevin-2023>.

<sup>16</sup> Ibid.

<sup>17</sup> Ibid.

<sup>18</sup> Ibid.; World Bank, "World Development Indicators - Vanuatu" (Data Bank, 2023), <https://databank.worldbank.org/reports.aspx?source=2&series=NY.GDP.MKTP.CD&country=#>.

<sup>19</sup> Department of Foreign Affairs and Trade, "Australia's Response to the Vanuatu Twin Cyclones," Australian Government, 2023, <https://www.dfat.gov.au/crisis-hub/australias-response-vanuatu-twin-cyclones>

<sup>20</sup> Tyne Logan, "The Cyclone That Just Hit Vanuatu Was the Earliest Southern Hemisphere Category 5 Ever Recorded. Here's Why," *ABC News*, October 26, 2023, <https://www.abc.net.au/news/2023-10-27/tropical-cyclone-lola-earliest-recorded-category-five-explainer/103019720>.

<sup>21</sup> Martin Brownbridge and Sudharshan Canagarajah, "Climate Change Vulnerability, Adaptation and Public Debt Sustainability in Small Island Developing States," Policy Research Working Paper 10787 (Washington, DC: World Bank, June 4, 2024), <https://doi.org/10.1596/1813-9450-10787>.

<sup>22</sup> International Institute for Environment and Development, "World's Least-Developed Countries Spend Twice as Much Servicing Debts as They Receive in Climate Finance: Data Tables," Media Briefing (London: International Institute for Environment and Development, October 24, 2024), <https://www.iied.org/worlds-least-developed-countries-spend-twice-much-servicing-debts-they-receive-climate-finance>.

<sup>23</sup> OECD, *Climate Finance Provided and Mobilised by Developed Countries in 2013-2022*, Climate Finance and the USD 100 Billion Goal (Paris: OECD, 2024), <https://doi.org/10.1787/19150727-en>.

<sup>24</sup> Oxfam International, "Rich Countries Overstating 'True Value' of Climate Finance by up to \$88 Billion, Says Oxfam," Press Release, Oxfam International, July 9, 2024, <https://www.oxfam.org/en/press-releases/rich-countries-overstating-true-value-climate-finance-88-billion-says-oxfam>.

<sup>25</sup> Australian Government, Department of Foreign Affairs and Trade. Counting Australia's Climate Finance. Accessed 18 June 2024. <https://www.dfat.gov.au/publications/international-relations/counting-australias-climatefinance>

<sup>26</sup> Australian Government Department of Foreign Affairs and Trade, "Delivering on Our Climate Finance Commitments."

<sup>27</sup> Oxfam Australia et al., "Seizing the Moment: A New Climate Finance Goal That Delivers for the Pacific" (Melbourne, 2024), <https://www.oxfam.org.au/wp-content/uploads/2024/08/14246-NCQG-Policy-Paper-WEB.pdf>.

<sup>28</sup> Sophie Hardefeldt et al., "Falling Short: Australia's Role in Funding Fairer Climate Action in a Warming World" (Oxfam Australia, ActionAid Australia, The Australia Institute, Jubilee Australia,

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<sup>29</sup> Centre for Research on the Epidemiology of Disasters (CRED)/UC Louvain, "EM-DAT."

<sup>30</sup> Ibid.

<sup>31</sup> Centre for Research on the Epidemiology of Disasters (CRED)/UC Louvain, "Entry Criteria," EM-DAT Documentation, April 13, 2023, <https://doc.emdat.be/docs/protocols/entry-criteria/>.

<sup>32</sup> A full list of PDNA report for Oceania can be extracted from the International Recovery Platform: International Recovery Platform, "Post-Disaster Needs Assessments," Prevention Web, October 26, 2021, <https://recovery.preventionweb.net/build-back-better/post-disaster-needs-assessments>.

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<sup>34</sup> AON plc, "Climate and Catastrophe Insight," AON, 2024,

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<sup>35</sup> Majority of media reports about disasters were sourced from Pacific digital media database Digital Pasifik: Pacific Virtual Museum project, "Home," digitalpasifik.org, accessed October 31, 2024, <https://digitalpasifik.org/>.

<sup>36</sup> Reports and information on disasters were sourced primarily from ReliefWeb, United Nations Office for the Coordination of Humanitarian Affairs (OCHA), "ReliefWeb - Informing Humanitarians Worldwide," ReliefWeb, October 31, 2024, <https://reliefweb.int/>.

<sup>37</sup> United Nations Office for the Coordination of Humanitarian Affairs (OCHA), "Updates (Reports Only)," October 30, 2024, <https://reliefweb.int/updates?list=Updates%20%28Reports%20only%29&view=reports>.

<sup>38</sup> Reserve Bank of Australia, "Historical Data," Reserve Bank of Australia, accessed November 4, 2024, <https://www.rba.gov.au/statistics/historical-data.html>.

<sup>39</sup> World Bank, "World Development Indicators" (Data Bank, 2023),

<https://databank.worldbank.org/source/world-development-indicators>.

<sup>40</sup> Hadley Wickham, "Easily Harvest (Scrape) Web Pages," rvest 1.0.4, 2024, <https://rvest.tidyverse.org/>.

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<sup>42</sup> National Hurricane Center and Central Pacific Hurricane Center, "Saffir-Simpson Hurricane Wind Scale," National Oceanic and Atmospheric Administration, accessed October 31, 2024, <https://www.nhc.noaa.gov/aboutsshws.php>.