

Briefing · October 2022

Exploring a comprehensive loss and damage facility for African countries

Key points:

- Africa is responsible for just 3% of all carbon dioxide emissions since the Industrial Revolution but is the most vulnerable continent to the impacts of climate change
- These impacts will increasingly exacerbate poverty and inequalities and disrupt livelihoods
- Comprehensive loss and damage facilities could be established at the national level in order to address country-specific needs
- These would function at multiple levels to cover unavoids and unavoidable, economic and non-economic losses and damages, and would encompass risk and curative (i.e. compensatory) finance mechanisms, with funding obtained through multiple avenues
- The finance sources could include philanthropy and solidarity funds, multilateral sources such as grants, loans and multi-donor trust funds, and other finance sources such as carbon levies and taxes, collected and distributed through a formal financing mechanism that is yet to be established.

The politics of loss and damage

Loss and damage – which refers to the negative impacts of climate change that may or may not be reduced by adaptation – is a contentious and highly politicised topic. This is because while developed nations are [responsible for most of the greenhouse gases](#) emitted since the Industrial Revolution, the warming caused by them is disproportionately impacting less developed countries that have contributed the least to global warming. For example, Africa is responsible for just 3% of all carbon dioxide emissions over the last few centuries but is [the most vulnerable continent](#) to the impacts of climate change.

Though the concept of loss and damage is formally recognised by the UN Framework Convention on Climate Change (UNFCCC) and has always been discussed at COPs, no provision has been made for the financing of loss and damage. Indeed it was a key sticking point in last year's COP negotiations. Wealthy nations are reluctant to commit to loss and damage funding due to concerns around legal liability, fearing they may become locked into open-ended litigation and compensation for climate-induced disasters. A proposal for a dedicated financing facility for loss and damage at COP last year by the negotiating bloc of the Group of 77 + China – which was supported by many climate-vulnerable and developing countries and civil organisations – was [rejected by the US and EU](#). A formal mechanism for collecting and distributing funds for loss and damage – whether by establishing a dedicated financing facility or placing it in an existing fund (such as the

Adaptation Fund) – will be high on the agenda for the Global South at this year’s COP 27 meeting.

Avoidable, unavoided and unavoidable risks

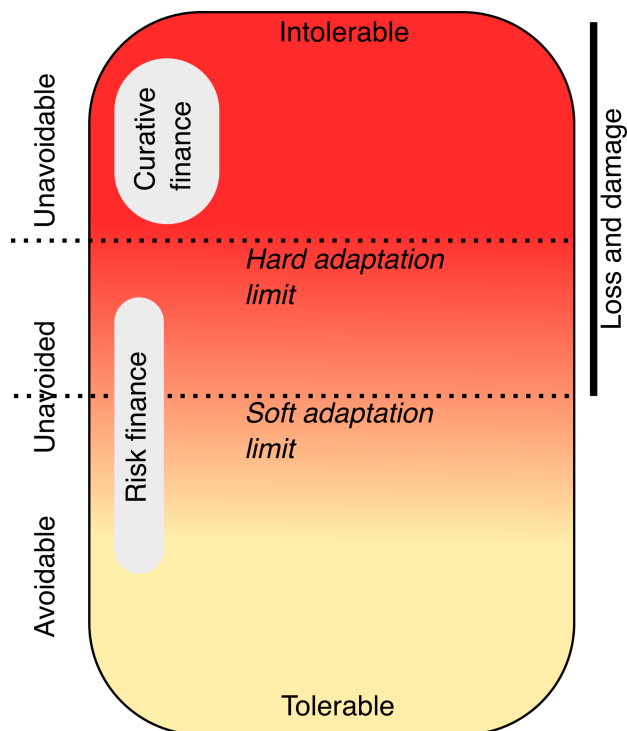
Loss and damage may encompass a wide range of circumstances, including:

- Extreme weather or rapid-onset events, such as storms, cyclones, heatwaves and floods
- Slow-onset events, such as drought, desertification, increasing temperature, land degradation, sea level rise and salinisation (an increase in concentrations of salt in soil)
- Non-economic impacts, such as the loss of cultural [heritage](#), native animals and plants and tradition
- Economic impacts, such as loss of lives, livelihoods, homes, agriculture and territory.

These impacts will [further exacerbate poverty](#) and inequalities and disrupt livelihoods, and increasingly so as temperatures rise. Some of these risks can be addressed through adaptation measures. If the measure is not available yet but could become available in the future, the risk is considered to be a ‘soft adaptation limit’. An example of this might be the development and implementation of an early warning system for floods in a region that is becoming increasingly flood prone. However, some risks have a ‘hard adaptation limit’, meaning that the available technologies and actions for averting this risk are not feasible. An example of this might be when an island becomes uninhabitable because of sea-level rise.

When considering risk financing mechanisms for loss and damage, it is helpful to think about risks as being situated along a continuum (see Fig. 1, adapted from [here](#)) of avoided risks (risks that have or will be avoided through mitigation), unavoided risks (risks that cannot presently be avoided or reduced due to socio-economic constraints) and unavoidable risks (hard adaptation limits). Loss and damage is centered around unavaoided and, particularly, unavoidable risks.

Fig. 1: Climate risks are situated along a continuum of avoided, unavoids or unavoidable risks.



The different finance mechanisms available

Risk finance

[A comprehensive climate risk management strategy](#) to avert, minimise and compensate for unavoids and unavoidable loss and damage would include ambitious mitigation, adaptation and disaster risk-reduction action. Various risk financing mechanisms based on risk pooling (spreading risk by sharing it across different lenders/insurers) and transfer exist that could be used to address loss and damage:

- Catastrophe/disaster risk insurance
 - Aimed at developing tailored financing strategies for improving financial resilience to natural hazards
 - One example is the [National Agricultural Insurance Scheme \(NAIS\)](#) in India, which aims to mitigate risks related to crop and livestock loss from climate events. The NAIS is funded by a state-owned insurer and receives technical support from the World Bank
 - Microinsurance can provide financial support to low-income households following disasters. One example is [Acre Africa](#), a World Bank initiative offering innovative and tailored microinsurance products to help small-scale farmers mitigate against crop failure from adverse weather
- National social protection schemes or social funds

- These consist of [a wide range of policies and interventions](#) aimed at reducing poverty, inequality and vulnerability, including social protection programmes, contributory social insurance and social health protection
- An example is [South Africa's Working for Water programme](#), which employs people in public sector projects to conserve water and ecosystems, thereby improving climate change adaptation and disaster risk reduction. The programme is funded by both government and private entities
- Contingency finance
 - Governments set aside public funds or obtain loans from multilateral financing institutions in order to [respond rapidly in the aftermath of a disaster](#)
 - If a loan is secured from a development bank, governments will only incur a cost in the event that funds need to be drawn from the loan
- Catastrophe-linked bonds
 - Risks are transferred from developing countries to the capital markets – financial markets where buyers and sellers trade bonds and other financial assets – in the event of a catastrophe, thereby filling in the financing gap for immediate post-disaster relief from extreme events
 - For example, the World Bank issued a catastrophe-linked bond (listed on the Singapore Stock Exchange) to provide [support for losses of up to USD 150 million](#) from tropical cyclones in the Philippines
- Climate-themed and green bonds
 - These are instruments that finance green or climate-themed projects and provide investors with regular or fixed income. Investors hedge against climate risks and receive returns on their investments
 - The International Finance Corporation (IFC) – a World Bank institution – has contributed substantially by issuing and investing in green bonds
 - For example, in 2021, the [IFC invested USD 100 million](#) in Egypt's first private sector green bond to help finance sustainable projects and the transition to a greener economy
- Forecast-based financing
 - These are funds that are released for pre-defined actions based on scientific forecasts and risk analysis
 - For instance, in Bangladesh, emergency kits are distributed prior to a cyclone.

These risk financing mechanisms are mostly appropriate for avoidable/unavoided loss and damage. However, it is not possible to prevent or minimise loss and damage that go beyond hard adaptation limits (unavoidable loss and damage) – such as many impacts from slow-onset events. For risks that cannot be addressed using these risk pooling and transfer mechanisms, curative finance may be needed:

Curative finance

- Loss and damage funds
 - These are trust funds that facilitate access to international finance and raise local money for climate change mitigation, adaptation, risk management and compensation

- A significant amount of donor support is required for these funds, which may be sourced from various entities (see the box on 'where the money comes from' below)
- An example is Bangladesh's National Mechanism for Loss and Damage, which is financed through multi-donor trust funds and the national budget
- Impact investment funds
 - Environmental and climate projects are financed by private and public funds, providing investors with returns on their investment
 - An example is [Livelihood Carbon Funds](#), which invest in projects such as mangrove restoration in Africa
- Trust funds
 - Funds are especially established to deal with a specific need, such as relocation due to climate change
 - For example, the Fiji Climate Relocation and Displaced Peoples Trust Fund for Communities and Infrastructure that was developed to respond to displacement due to sea-level rise
 - Funding is obtained from a climate and adaptation levy (whereby certain services, incomes and items are taxed) and, potentially, bilateral and multilateral funding.

The finance sources discussed in the box below could be used for both risk finance and curative finance mechanisms.

Where might the money come from?

Philanthropic and solidarity funds

- Philanthropic funds
 - At COP 26, several philanthropic climate funders, including the European Climate Foundation, Open Society Foundations, and Hewlett Foundation, committed an initial USD 3 million in loss and damage finance as 'start-up assistance'
- Solidarity funds. Here are examples of what solidarity funds could look like:
 - The European Union Solidarity Fund (EUSF) – financial contributions are made by EU member states and are administered by a flexible governing mechanism
 - Unitaid – finance is obtained through national aeroplane levies, voluntary contributions by countries and philanthropy
- Government pledges
 - At COP 26, Scotland and Wallonia committed USD 2.5 million and USD 1 million respectively to financing loss and damage
 - Denmark committed USD 13 million to loss and damage financing this year.

Multilateral sources

- Within the UNFCCC, the Green Climate Fund (GCF) is the only source providing adaptation and loss and damage financing. [Approximately 24%](#) of GCF-approved projects refer to loss and damage

- Global Facility for Disaster Reduction and Recovery (GFDRR), which is a grant-funding mechanism
- Global Risk Financing Facility (GRiF), which is a multi-donor trust fund that provides grants
- Multilateral development banks, which could provide assistance in the form of grants (need not be paid back) and loans (need to be paid back)
- The multi-donor [trust fund of the Climate Vulnerable Forum and the Vulnerable Twenty Group](#)
- The World Bank's International Development Association (IDA), which provides finance via concessional loans and grants and policy advice to developing countries
- Official development assistance (ODA) – between 2010 and 2019, 11% (USD 133 billion) of international aid was disaster-related, suggesting that ODA could be [an important source](#) of loss and damage finance.

Innovative finance sources

- Luxury carbon tax or wealth tax
 - Levies and taxes could be added to luxury or high-emissions intensity products or activities, such as space tourism, buying luxury yachts and sports cars and using private jets
- Financial transaction tax
 - A small levy could be placed on the buying and selling of financial assets, which could provide up to [USD 16 billion](#) in revenue.
- International airline passenger levy
 - A modest fee on international aeroplane tickets could be paid directly into a loss and damage fund
- Bunker fuels levy
 - The emissions and fuels of cargo transportation by ship and aeroplane could be taxed. The International Monetary Fund (IMF) estimated that a tax of USD 30 per tonne of carbon emitted by aeroplanes and ships (advanced economies only) would have raised [USD 25 billion in 2014](#)
- Fossil fuel majors carbon levy
 - The Carbon Majors report in 2013 found that [63% of emissions](#) in the atmosphere are from coal, gas, oil and cement from only 90 companies
 - A [global fossil fuel levy](#) could be imposed on these companies and directed into a loss and damage fund that could be supplemented by a one-off fee from each company based on its historical emissions
 - For instance, the prime minister of Barbados has [proposed a 1% tax](#) on sales revenues for fossil fuels, which could raise USD 70 billion each year
- Global carbon tax
 - A global system of carbon pricing could help fund loss and damage either through taxation or auction revenues generated from trading schemes, such as the EU Emissions Trading System.

What would a comprehensive loss and damage facility look like for African countries?

Comprehensive loss and damage facilities could be established at the national level in order to address country-specific needs. The facility would need to function at multiple levels to cover unavoided, unavoidable, economic and non-economic losses and damages and would encompass the risk finance and curative finance mechanisms discussed above, with funding obtained through multiple avenues. It would also require close cooperation and coordination among different levels of government, the multilateral system and various sectors across society. A potential loss and damage facility could be broken down into four main components:

- Knowledge and capacity development
- Resilience building
- Funding collection and allocation
- Compensation for, and recognition of, unavoidable loss and damage.

Knowledge and capacity development

These are knowledge and technology-sharing measures for averting and minimising loss and damage impacts:

Establish centralised and reliable climate change databases

- The database should include high-quality meteorological data, climate projections and warnings and archives of climate events
- National governments and research institutes need access to sophisticated technologies such as numerical flood monitoring and flood mapping infrastructure, and improved data collection tools and capacity in order to better understand trends and respond appropriately
- These tools would be fundamental for developing early-warning systems for floods, droughts, fires and other climate hazards
- This information is also important for [climate change attribution](#).

Build collaborative and inter and trans-disciplinary research

- Encourage skills sharing between research institutes and universities in developing and developed nations to ensure that local entities have access to the latest and most sophisticated tools for monitoring events
- For example, the University of KwaZulu-Natal in South Africa is working with the Dutch research institute Deltares to develop an [early warning system for floods](#)
- Increase university funding for research on loss and damage and climate change from international donors and public funding sources.

Strengthen technical capacity building for local governments

- Provide local governments with the tools, expertise and capacity to effectively coordinate preparations for and responses to climate disasters
- For instance, the Council for Industrial and Scientific Research (CSIR) in South Africa has developed a state-of-the-art online risk profiling and adaptation tool, called the [Green Book](#), for assisting municipalities in assessing risks and vulnerabilities to climate change. The tool is co-funded by the Canadian International Development Research Centre and was produced together with South Africa's National Disaster Management Centre.

Resilience building

These are physical measures for averting and minimising loss and damage impacts that prioritise climate-resilient interventions:

Investment into projects that promote climate resilience

- For example, Access Bank in Nigeria issued a certified green bond that will mostly go towards [building coastal flood defenses](#) to protect against sea-level rise.

Construction of physical climate barriers and adaptation measures

- For example, [the construction of sea walls](#) along Tanzania's coastline, funded by the US Adaptation Fund and the Global Environment Facility's Least Developed Countries Fund
- Through the Adaptation Fund Climate Innovative Accelerator, grants are being administered for innovative adaptation technologies. An example is [Slamdam](#), an inexpensive technology for protecting people from flooding that is being piloted in Burundi.

Preventative building measures, such as retrofitting houses to improve resilience

- For example, low-cost homes in South Africa were [retrofitted with ceiling insulation](#) through a local government project financed by South Africa's Green Fund, which has a portfolio of investment projects and is managed by the Development Bank of Southern Africa.

Case study 1: Extreme precipitation in Durban, South Africa

Earlier this year, extremely intense rainfall (> 450 mm in 48 hours) led to flash floods and landslides in Durban in South Africa, killing more than 450 people, destroying 4,000 houses, displacing around 40,000 people and causing ZAR 1.7 billion in damages. This event is considered one of the worst natural catastrophes in South African history in terms of economic and human life loss and was made [twice as likely due to climate change](#).

The floods [disproportionately affected marginalised communities](#) and the impacts were worsened by pre-existing structural vulnerabilities – a legacy, in part, of [centuries of colonialism](#) and [apartheid](#), further exacerbated by current exploitative international relationships and global power imbalances.

South Africa was [ill-prepared to respond](#) to the event:

- There is no reliable disaster risk database
- Local, provincial and national governments have not been proactive in planning and building resilience, which may be due to a lack of coordination, finance, capacity or expertise
- Early-warning systems and flood mitigation measures are inadequate, and so no rapid-response system is available.

Other factors compounded the risks from this event, including uncontrolled urbanisation and a lack of land-use zoning enforcement (e.g. stopping people from building below the flood line). In addition, poor education in many communities means that people may not fully understand the danger posed by such an event and may be reluctant to move when asked to. The region is also [reeling from the negative economic impacts](#) of the Covid-19

pandemic and socio-economic unrest.

Who paid for the impacts?

- [Contingency finance](#) from South Africa's National Disaster Management Centre
- [Multipurpose cash grants](#) for victims from UNICEF, funded by EU humanitarian aid funding, provided immediate relief
- [Flood relief funds](#) from nonprofits, financed by donors
- The [Industrial Development Corporation](#), owned by the South African government, which is funded through loan and equity investments from commercial banks, development finance institutions and other lenders
- [Insurance schemes](#) self-funded by individuals and businesses
- Provincial government entities, such as the [Coega Development Corporation](#).

In addition to this, [a comprehensive loss and damage facility](#) for averting, minimising and compensating for this disaster might cover the following:

- Developing an advanced early-warning and rapid-response system
 - Acquire funding from international sources, including research grants, to facilitate research
 - Facilitate skills and expertise sharing with international experts
- Relocating at-risk communities to suitable land above the flood line
 - Financed through trust funds set up for relocation
- Protecting at-risk infrastructure through flood control mechanisms
 - This could be funded through green bonds or impact investment funds.
- Providing facilities in anticipation of events
 - Allocate forecast-based financing for distribution of health packs or mobile health facilities
- Uplifting local communities through resilience measures
 - Invest in national social protection schemes and preventative measures (i.e. retrofitting houses to make them flood or rain proof)
 - Invest in projects that empower local government to educate and communicate with communities on flood impacts.

Fund collection and allocation

These are approaches for maximising fund collection and allocation for loss and damage impacts:

Diversify funding sources

- Design funding options that are not currently in place, such as from innovative sources
- Encourage funding to be based on grants and concessional loans (i.e. loans that offer more favourable terms than market-based loans).

Streamline funding acquisition

- Maximise overall loss and damage financing through comprehensive risk management frameworks that include a range of funding sources, rather than relying on ex-post (after the event) aid, which is unreliable and difficult to monitor
- Diversify social protection measures and the financing thereof

- Improve government capacity to undertake international negotiations on loss and damage financing.

Establish trust funds

- Multilateral development banks and national development banks have great potential to address loss and damage through trust funds
- Trust funds geared towards country-specific needs should be established, such as the Fiji Climate Relocation and Displaced Peoples Trust Fund for Communities and Infrastructure, which was developed to respond to displacement due to sea-level rise.

Develop a dedicated loss and damage financing mechanism

- A dedicated financing facility should be established to track and prioritise which aspects of loss and damage need funding
- Ensure that the funds are reaching the most vulnerable.

Case study 2: Tropical cyclone Ana in Mozambique

Mozambique experienced extreme rainfall from tropical cyclone Ana this year, [displacing](#) 180,869 people, destroying 12,000 houses, damaging 26 health centres, 2,275 km of road and 765 schools, and flooding 37,930 hectares of crops, severely impacting food security. Climate change [increased the likelihood and intensity](#) of the rainfall associated with these cyclones, and these events are projected to become increasingly severe with climate change. Mozambique has contributed [0.01% of global carbon dioxide emissions](#) since the Industrial Revolution.

Sixty percent of the population of Mozambique lives along the coastline and is vulnerable to tropical storms. Mozambique [ranks 9th out of 191 countries globally](#) in terms of high vulnerability to climate impacts, exposure to risk and lack of coping capacity. Recent military insurgence in some parts of the country, rooted in [unemployment, underdevelopment, poor governance and poverty](#), has led to the [death of around 4,000 people and the displacement of nearly one million](#).

[Current funding sources and mechanisms](#) for climate disasters in Mozambique include:

- Contingency finance
 - This is the main disaster funding source in the country, but it only covers the initial emergency phase and is limited
- Donors
 - Donations are a significant source of funding for extreme events but are difficult to monitor and predict, in part because there is no centralised monitoring and coordinating mechanism
- Emergency loans
 - These are organised in advance and can deliver funds in the event of an emergency. However, they are unpredictable, difficult to monitor and require long negotiations that cause delays in recovery and reconstruction
- Contingency budget
 - The Ministry of Public Works, Housing and Water Resources is the only sector to use a contingency budget, which allocates emergency funds to the recovery of roads and bridges.

How could the response to tropical cyclones be improved under a comprehensive loss and damage facility?

- The Disaster Management Fund, which has been created by the Mozambican government to proactively budget for events rather than reallocate funds after the event. This has received funding in the form of a [grant from the World Bank](#)
- Contingent loans are being discussed by the Mozambican government and World Bank and would provide immediate access to liquidity for emergency response and recovery following a disaster. This is especially important for providing immediate relief while funds are being obtained from other sources
- Comprehensive rural insurance schemes, including microinsurance for agriculture, supported through entities such as the [Global Index Insurance Facility](#), a multi-donor trust fund that supports smallholder farmers
- Trust funds and loss and damage funds, such as relocation trust funds for those living in high-impact areas
- National social protection schemes and other resilience measures for uplifting vulnerable communities. Examples might include retrofitting houses, medical centres and schools to make them storm proof. Investment in infrastructure for protecting communities from storm impacts could be funded through green bonds and impact investment funds
- A comprehensive database on disasters as well as a sophisticated early-warning system could be developed with international expertise and financing. This would include means for disseminating information on imminent events, as rural areas are isolated and do not have reliable telecommunications.

Case study 3: Tropical cyclone Ana in Malawi

Together with Mozambique and Madagascar, Malawi experienced intense rainfall and winds from tropical cyclone Ana, affecting around [one million people, destroying 115,388 hectares of crops and leaving 114,218 children without school facilities](#). [Climate change increased the likelihood](#) of this event in Malawi and is likely to increase the likelihood and intensity of tropical cyclones in the future. Malawi's department of disaster management estimated that its four-month recovery plan required around [USD 84 million](#). Malawi has [contributed less than 0.01%](#) of global carbon dioxide emissions since the Industrial Revolution.

Malawi is [one of the poorest countries in the world](#), with an economy that is heavily reliant on agriculture, which employs up to 80% of the population. This makes it particularly vulnerable to climate shocks. Around 90% of people live in rural areas and are mostly engaged in [rain-fed subsistence and smallholder farming](#). Around 2.3 million people face food insecurity and require assistance. [Armed conflict](#) in Northern Mozambique has also impacted more than one million Malawians.

How were affected communities supported following this event?

- By the [four-month recovery plan](#) of Malawi's department of disaster management, which received funding and technical support from humanitarian partners
- A ['flash appeal'](#) launched by humanitarian partners of the Malawian government,

including the Malawi Red Cross, seven national NGOs, 26 international NGOs and 10 UN agencies, all of which aimed to provide assistance for those affected in the immediate aftermath of the event

- By [Oxfam and its humanitarian partners](#), who provided immediate relief in the form of cash, food, clean water and sanitation
- Provision of [health and nutrition kits by UNICEF](#)
- By other humanitarian organisations, such as [Partners for Reproductive Justice](#), which provided health kits and mobile clinics for girls and women, and Christian organisations such as the [Catholic Development Commission](#), which provided cash and non-food items, such as blankets and soap.

What are some of the major challenges in responding to, and preparing for, extreme weather events in Malawi?

- Because of its high poverty and low level of economic development, Malawi is not resilient to climate disasters
- As emphasised by the response to Ana, Malawi is [highly reliant on humanitarian aid](#). The [National Resilience Strategy of the Malawian government](#) recognises the need for policy and new approaches to shift away from humanitarian aid and towards response plans and programmes that strengthen resilience to shocks
- Though Malawi's Department of Climate Change and Meteorological Services started issuing weather warnings on radio and television three days before the cyclone, many living in rural areas do not have access to radios or other telecommunications. [The Department of Climate Change and Meteorological Services also cites issues](#) including relaying weather information to those who are less educated, difficulties translating technical weather language into understandable formats, and a limited capacity for authorities to take action.

How could the response be improved through a dedicated loss and damage facility?

- An analysis by the [Loss and Damage Collaboration](#) on a national loss and damage mechanism for Malawi found that:
 - Key aspects missing in the loss and damage agenda at the government level include slow-onset events, which have been given no policy priority, and non-economic loss and damage. It suggested these impacts should be monitored and assessed in order to understand them better
 - A loss and damage mechanism wouldn't require the invention of completely new tools and approaches but should build upon existing institutions and frameworks
 - The mechanism should include a financing facility that could track and prioritise which aspects of loss and damage need funding with a focus on the most vulnerable
- Given the challenges faced by the disaster warning system currently in place, the facility could focus on improving resilience and responses by:
 - Developing a comprehensive risk database and a sophisticated early-warning system that can reach rural communities. This could be both national and community-based to reach various sectors of society
 - Investing in programmes that help improve the understanding of climate disasters and impacts in communities so that they are better equipped to respond to these events
 - Developing multi-level contingency plans in order to improve disaster-response systems
 - Strengthening coordination between various sectors of society to manage early response systems

- To improve resilience against tropical cyclones, the facility could focus on:
 - Developing and improving existing infrastructure to protect against floods and other climate impacts
 - Providing facilities in anticipation of events, such as health facilities and shelters
 - Relocating at-risk communities to suitable land above the flood line
 - Uplifting local communities through resilience measures, such as national social protection schemes
- Malawi is the ninth country to join the Africa Disaster Risk Financing Programme (ADRFi), which, together with African Development Bank and African Risk Capacity (a specialised insurance company established by the African Union), aims to enhance government responses to climate shocks and strengthen the resilience of rural communities
- This year, [the African Development Bank approved a grant of USD 9.25 million](#) for the financing of the ADRFi in Malawi. The first part of the grant will come from the African Development Fund, while the ADRFi multi-donor trust fund will provide the second part of the grant.

Compensation for, and recognition of, unavoidable loss and damage

These are various measures for compensating for and recognising loss and damage impacts that are unavoidable:

Recognition of impacts

- Active remembrance of losses, such as through school curricula, museums and exhibitions
 - If people are relocated, efforts should be made to maintain a sense of cultural identity
- Encourage restorative dialogue
 - Official apologies
 - Truth and reconciliation conferences
- Trauma counselling
- Enabling access to abandoned sites.

Compensation for impacts

- Support for rebuilding livelihoods and infrastructure
- Support for developing alternative livelihoods
 - For example, educating people on an alternative skill due to livelihood being lost, such as fishers who can no longer fish due to sea-level rise
- Facilitating safe migration and resettlement.

These could be financed through curative finance mechanisms.

Case study 4: The Cape Town water crisis, South Africa

The Western Cape province of South Africa, where Cape Town is situated, experienced three years of consecutive drought from 2015 to 2017, leading to a major water shortage that almost saw the taps run dry for the four million residents of Cape Town. Unlike the

tropical storms and floods mentioned in the previous case studies, this is an example of a slow-onset event that, despite having disastrous consequences, is often [less likely to be on the political and policy agenda](#). However, scientists have found that climate change [tripled the likelihood](#) of this event and will increase the likelihood of it occurring again in the future. While the current water system in place in Cape Town was designed to provide sufficient water to mitigate drought once every 50 years, climate change has significantly increased drought frequency. This means the system is more vulnerable to drought than previously thought.

The water crisis had severe economic impacts for the region. Industries that were hit particularly hard include agriculture and tourism. The region produces 60% of the country's agricultural exports and contributes 20% of domestic agricultural production. The estimated loss to agriculture alone during the water crisis was USD 0.4 billion and included the loss of 30,000 jobs. Cape Town is one of the most visited cities in the country and is a tourism hub of Africa, and the water crisis saw major declines in the numbers of overseas tourists visiting the region.

How might a comprehensive loss and damage facility improve the resilience of this system?

Investment in technologies and schemes

- The system is entirely dependent on rainfall, making it highly vulnerable
- Investment could focus on alternative technologies such as water de-salinisation plants, groundwater extraction and updated integrated urban water management, as well as the updating of existing infrastructure. This could be supported by:
 - Technology and information sharing by international experts to help devise an integrated urban water management programme, funded by research grants
 - Green bonds and impact investment funds to finance these technologies
 - Investment in national social protection schemes, such as South Africa's Working for Water project, which has already contributed significantly to improving drought resilience through removing alien vegetation from key water catchment areas

Support for farmers and other industries at risk

- Investment in preventative measures, such as retrofitting or upgrading farms with improved capacity to store water
- Investment in water-saving management approaches and tools
- Empowering local governments and other entities to educate communities on water management

Emergency support in the event of another water crisis

- Catastrophe-linked bonds
- Disaster risk insurance
- Contingency finance.

