SYNERGY SOLUTIONS 2025

Closing the Climate and Disaster Insurance Protection Gap

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The **Centre international de recherche sur l'environnement et le développement (CIRED)** is an interdisciplinary research laboratory at large economic dominant. The work of CIRED is devoted to the study of the relationship between modes of economic regulation and the genesis of the technical universes that structure the relationship between human activities and the natural and constructed biophysical environment. www.centre-cired.fr/en

The **Uniteed Nations Development Porgramme (UNDP)** is a United Nations agency tasked with helping countries eliminate poverty and achieve sustainable economic growth and human development. The UNDP emphasizes on developing local capacity towards long-term self-sufficiency and prosperity. www.undp.org

The **World Food Programme (WFP)** is humanitarian organization within the United Nations that saves lives in emergencies and using food assistance to build a pathway to peace, stability and prosperity, for people recovering from conflict, disasters and the impact of climate change. www.wfp.org

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Key Messages

Closing the insurance gap accelerates SDG progress—**a 1% increase in insurance coverage moves countries 5.8% closer to achieving Sustainable Development Goals.**

The disaster insurance protection gap is widening**—currently, 62% of global economic losses from natural catastrophes are uninsured. In Africa, only 0.5% of losses had coverage.**

Climate change threatens insurance accessibility—**some regions and businesses may become effectively 'uninsurable' due to rising costs and limited coverage.**

A risk-layering approach optimizes financial protection—**combining risk retention mechanisms with risk transfer instruments enhances resilience.** Only 2% of the $76 billion spent on disaster crisis financing in 2022 was pre-arranged.

Integrating disaster risk financing into national development **can reduce reliance on post-crisis emergency aid by securing funding before disasters occur. Only 30 countries have developed standalone disaster risk financing strategies.**

Structural barriers hinder insurance penetration—**high costs, fragmented regulations, and limited consumer awareness to reduce insurance uptake.**

Governments can incentivize insurance uptake **through a range of regulatory and financial instruments. A risk instrument ladder can help in deploying a cost-effective mix of instruments.**

Investing in risk prevention is cost-effective—**proactive risk reduction can be up to 10 times more effective than post-disaster rebuilding.** However, policyholders worldwide are not consistently rewarded through **a lower policy premium for their preventive measures.**

Inclusive insurance solutions help vulnerable populations—**microinsurance and parametric models can provide financial protection at lower premium costs. Microinsurance accounts for only 15% of the estimated market size.** Policy support can accelerate the uptake of micro-insurance.

Adaptive social security systems strengthen disaster response—**integrating disaster risk financing with social protection ensures efficient fund allocation.** Yet, synergies between disaster risk financing and social protection remain underutilized.

Quantifying the cost effectiveness of closing the climate and disaster investment gap is an evolving field. Nevertheless, **direct extrapolation from existing initiatives would indicate that an investment of $15-25 billion could provide coverage to an additional 3 billion people.**

Successfully closing the climate and disaster insurance protection gap will require **sustained, coordinated efforts from a broad range of stakeholders. Integrating insurance more prominently into development agendas** can help drive and sustain these efforts, ensuring resilience against future climate and disaster risks.

Executive Summary

In 2023, **economic losses from natural catastrophes totaled $290 billion, with 62% of global losses remaining uninsured.** In high-income countries, about half of reported economic losses from climate-related events were insured, whereas **in Africa, only 0.5% of losses had coverage**. As the climate crisis intensifies, **uninsured global losses could double by 2030, reaching $560 billion.** Certain regions and businesses may become effectively 'uninsurable'—either due to the complete absence of insurance options or because coverage is inadequate, inaccessible, or prohibitively expensive. Unmitigated climate change could lead to **annual economic losses between $7 trillion and $38 trillion by 2050.**

Closing the climate and disaster insurance gap is essential to accelerate progress on the Sustainable Development Goals (SDGs) and reduce the protection gap. According to some estimates, **a 1% increase in insurance coverage moves countries 5.8% closer to achieving SDGs.** Insights from literature and case studies highlight five key strategies to address the climate and disaster insurance protection gap:

1. INTEGRATING DISASTER RISK FINANCING INTO NATIONAL DEVELOPMENT

A national disaster risk financing strategy can significantly reduce reliance on post-crisis emergency aid by securing funding before disasters strike. Governments can optimize financial protection by layering risk retention mechanisms (such as contingency funds, budget allocations, and credit lines) with risk transfer instruments (including insurance and catastrophe bonds). **Shifting from reactive (ex-post) responses to proactive (ex-ante) financing solutions allows for faster crisis response,** minimizing economic disruption.

Despite the benefits of pre-arranged financing, **only 2% of the $76 billion spent on disaster crisis financing in 2022 was pre-arranged.** Recognizing this gap, the High-Level Panel on Closing the Crisis Protection Gap has urged that the proportion of pre-arranged international crisis finance increase tenfold over the next decade. However, **only 30 countries have developed standalone disaster risk financing strategies,** despite escalating climate risks.

2. INCENTIVIZING INSURANCE OFFER AND UPTAKE

Insurance penetration remains low in many countries due to structural barriers such as limited access to long-term affordable capital, fragmented market regulations, weak enforcement capacity, lack of data, and low consumer awareness. Additionally, the predominance of informal economies and small insurance market sizes further hinder expansion.

The optimal mix of policies and financial tools to overcome these barriers varies across communities, industries, and countries, as well as different stages of insurance market development. To optimize the deployment of scarce public resources, **a risk instrument ladder approach is proposed to close the insurance protection gap.** This includes: (i) regulatory measures to incentivize and derisk insurance uptake and offer; (ii) premium and capital support to increase affordability and availability of disaster insurance; (iii) alternative risk transfer mechanisms; (iv) national public (re)insurance schemes; (v) regional catastrophe risk pools; and (vi) global umbrella GDP stop-gap mechanisms.

3. ENCOURAGING INVESTMENT IN RISK REDUCTION AND PREVENTION.

Investing in risk prevention and reduction can be up to 10 times more effective than rebuilding. Governments play a critical role in promoting risk-informed development and addressing the underlying vulnerabilities that transform hazards into disasters. For instance, between 1970 and 2010, the number of people living in flood plains increased by 114%, while those in cyclone-prone coastal areas grew by 192%, a trend expected to continue in the coming years in the absence of regulatory interventions.

Insurance pricing models should incentivize proactive risk reduction by offering lower premiums for resilience-building investments. However, **policyholders worldwide are not consistently rewarded for their preventive measures.** Some jurisdictions are experimenting with legislation requiring insurers to provide discounts to homeowners who enhance their properties' resilience against natural hazards. Governments can further support risk reduction by integrating prevention into insurance pricing through improved data provision. They can also help policyholders manage upfront costs for resilience investments by offering concessional capital or financial incentives.

4. DEVELOPING INCLUSIVE INSURANCE SOLUTIONS TO LEAVE NO ONE BEHIND.

Vulnerable populations often struggle to access traditional insurance markets. Inclusive insurance mechanisms—such as microinsurance and parametric models—offer tailored coverage for low-income households and small businesses, ensuring financial protection without excessive premium costs. In 2022, **microinsurance covered 330 million people across 36 countries,** generating $5.8 billion in premiums. While many innovations in this space are still in the early stages of commercial success, some pioneering schemes are proving the scalability and sustainability of microinsurance business models. For instance, the Zambian Farmer Input Support Programme (FISP), launched in 2002, insured over 1 million farmers in 2024 while providing $38 million in payouts.

Despite this progress, **microinsurance accounts for only 15% of the estimated market size.** As for macro- and meso-insurance solutions, regulatory instruments can help accelerate the uptake of micro-insurance. Notably, ggovernments can mandate transparency in insurance contracts to build consumer trust, develop proportionate regulatory frameworks (e.g., reduced capital requirements for microinsurance providers) and integrating inclusive insurance into national resilience strategies to provide long-term market visibility.

5. FOSTERING ADAPTIVE SOCIAL SECURITY SYSTEMS.

When developing a Disaster Risk Financing Strategy, **money-out systems should be designed alongside money-in instruments** to ensure efficient fund distribution. **Social protection systems could play a crucial role in ensuring that mobilized funds are delivered swiftly, transparently, and effectively.** However, synergies between disaster risk financing and social protection remain underutilized.

Currently, ex-ante disaster financing instruments rarely require specific spending plans, and insurance payouts are seldom channeled through social protection schemes. To address this gap, innovative mechanisms are emerging. One example is the WFP Caribbean's top-up model, which provides governments with additional funding to top up a portion of the payout. These funds are allocated for cash assistance to vulnerable populations affected by disasters through national social protection programs.

6. A ROADMAP TO OPTIMIZE SYNERGIES BETWEEN DISASTER INSURANCE PROTECTION AND THE SDGS

Successfully closing the climate and disaster insurance protection gap will require **sustained, coordinated efforts from a broad range of stakeholders.** The paper presents a **multi-stakeholder roadmap** to implement its key recommendations and enhance synergies between disaster insurance protection and the SDGs. Integrating insurance more prominently into development agendas can help drive and sustain these efforts, ensuring resilience against future climate and disaster risks.

Quantifying the cost effectiveness of closing the climate and disaster investment gap is an evolving field. The cost will depend on various factors, including (i) the respective exposure and vulnerability of geographic regions; (ii) the type of policy and financial instruments deployed to incentivize the uptake and offer of ex-ante disaster financing instruments; (iii) the capacity to encourage risk reduction and prevention; (iv) the development of innovative insurance products to respond to evolving threats and to reach out to underserved population; and (v) opportunities to capitalize on existing social infrastructures such as social protection systems to release funds in a timely and efficient manner. However, **direct extrapolation from existing initiatives would indicate that an investment of $15-25 billion could provide coverage to an additional 3 billion people.**

Introduction: Why Does the Widening Disaster Insurance Protection Gap Matter?

Annual global economic losses from unmitigated climate change are projected to range between $7 trillion and $38 trillion by 2050[1]. It is critical to mobilize and deploy efficiently and effectively all capital available to swiftly respond to these events and mitigate losses. Disaster risk financing is an integral component of disaster risk management and of the climate change agenda. It complements investments in risk identification, risk reduction, preparedness, and planning for disaster recovery.

With crisis costs projected to be in trillions of dollars annually by 2050, insurance mechanisms are an essential part of disaster risk financing for transferring enormous financial risks away from public balance sheets and mobilizing capital markets to enhance the resilience of vulnerable populations. Insurance is the foundation on which all other layers of finance are built, and without it no major project can move forward. As stated by Prime Minister Mia Motley, *"what is not insurable is not investible"*[2]. Insurance fulfills numerous roles to foster sustainable development, including: (i) providing security against the loss of assets and livelihoods; (ii) ensuring reliable post-event relief that enables affected populations to build back better; (ii) setting incentives for prevention; and (iv) reducing risks for public and private investments, especially weather-affected and climate investment[3].

Higher levels of insurance penetration or coverage have been found to reduce contractions in economic activity after disaster events or eliminate them in the case of full insurance[4]. Individuals, households, business owners and financiers are more willing to invest in new ventures and physical capital when they know they are not at risk of losing everything to a natural hazard. The enabling role of insurance has helped drive some of the most important economic and social transitions humanity has experienced, from the introduction of steam boilers to the mass electrification of cities[5], and can play a similar role to accelerate the green transition and achieve sustainable development goals.

However, protection gaps in disaster insurance are a major issue worldwide. These gaps are defined as the difference between economic losses and insured losses from natural disasters. In 2023, economic losses from natural catastrophes reached $290 billion, with approximately 62% of the global losses remaining uninsured. In high-income countries, about half of reported economic losses from climate-related events were insured. In Africa, only 0.5% of economic losses were insured[6].

As the costs of the climate crisis escalate, this insurance protection gap could widen. Since 2017 annual insured losses from natural catastrophes such as floods, hurricanes, wildfires, and droughts have averaged over $110 billion, more than twice the $52 billion average of the previous five years[7]. An increasing number of (re)insurance companies are withdrawing their cover from regions particularly affected by climate change in vulnerable countries, causing a spike in premiums[8]. In the absence of concerted action, uninsured global losses could double by 2030, reaching 560 billion according to some estimates[9].

TABLE 1. Total Insurance Gap by Regions in 2023

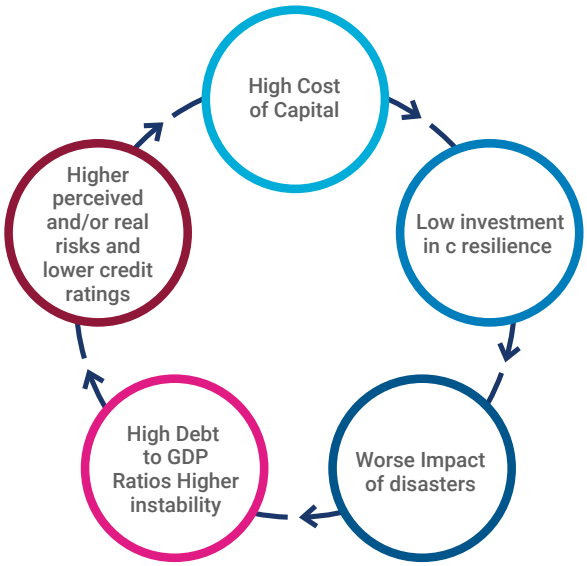
Regions	Number	Victims	Insured losses (USD bn)	in%	Economic losses (USD bn)	in%
North America	105	297	72.7	62.1%	98.0	33.7%
Europe	53	62,980	26.9	22.9%	109.2	37.5%
Africa	54	7,589	0.6	0.6%	10.0	3.4%
Asia	85	5,098	7.8	6.6%	49.6	17.0%
Oceania/Australia	8	29	4.2	3.6%	8.2	2.8%
Latin America & Caribbean	27	576	5.1	4.3%	15.9	5.5%
World total	**332**	**76,569**	**117.2**	**100%**	**290.7**	**100%**

Source: Banerjee, C et al. (2024) *Natural catastrophes in 2023.* sigma 01/2024. Swiss Re Institute.

Certain areas and businesses may become effectively "uninsurable"[10], either because insurance is no longer available to them, or is offered but sufficient coverage is no longer accessible or is no longer affordable to certain groups because of its price[11]. As such, un-insurability touches both the supply side — insurers not offering products — and the demand side, as people at risk are either unable or unwilling to purchase insurance[12]. In the absence of insurance coverage, large-scale natural hazards leave vulnerable countries economically broken, with insufficient funds to provide emergency relief to victims and to recover.

Repeated extreme weather events might result in a socio-economic tipping point beyond which vulnerable countries cannot afford to rebuild after disasters and will fall into a resilience trap. Increasingly fragile, they will be at the mercy of credit rating downgrades and see their access to finance to enhance their resilience to future climate shocks even further curtailed. This will severely affect households and businesses. Without adequate protection against major shocks and limited government support, they are likely to resort to distress measures, such as foregoing productive assets, which further undermine their financial stability and future insurability. Figure 1 visualizes this resilience trap.

FIGURE 1. The Resilience Trap



Source: Authors

Closing the disaster protection gap and maintaining the insurability of vulnerable groups is essential to prevent countries and people from falling into this resilience financing trap and to achieve any of the Sustainable Development Goals. Countries with high levels of insurance penetration have made the most progress in meeting their SDGs[13]– as measured by the SDG index[14]. Allianz found that for every 1% increase in Property and Casualty (P&C) insurance penetration, countries move on average 5.8% closer to SDG achievement (the SDG Index increases by an average of 5.8 points)[15]. Focusing on SDG 8 (growth) as an illustration, empirical studies would indicate that there is a general correlation between insurance penetration and GDP growth. Covering a set of 77 advanced and emerging economies for the period 1994–2005, Han et al. (2010) found for example that a 1% increase in total insurance penetration led to a 4.8% increase in economic growth per year[16].

The insurance industry could play a crucial role in reducing climate and disaster risks as a risk manager, a risk taker, and an investor. However, a steep change in the regulation, provision and operations of insurance is required to fully leverage this triple role. Insights from the literature and case studies suggest five main avenues to close the climate and disaster insurance protection gap: (i) better integrating risks risk financing into national development strategies, including national budget planning; (ii) incentivizing insurance provision and uptake; (iii) pricing insurance premium to incentivize investment in prevention and building forward better; (iv) developing inclusive insurance solutions; and (v) fostering adaptive social security systems to better serve low-income households and SMEs. The paper discusses each of the avenues and concludes with a possible multi-stakeholder roadmap for implementing these recommendations.

I. INTEGRATED DISASTER RISK FINANCING STRATEGIES

To mobilize and deploy swiftly and efficiently adequate resources to respond to crises, the first step is to develop a comprehensive understanding of risk. It will enable the quantification of the potential impacts of unmitigated disasters, including their fiscal costs. The second step is to identify and design risk reduction measures commensurate with the severity and frequency of anticipated risks. The third step is to design integrated risk financing strategies where financial protection mechanisms work alongside risk reduction measures.

Risk financing strategies represent a planning approach for risk that cannot be reduced or avoided practically or cost effectively[17.] These strategies must identify existing disaster protection gaps and their underlying causes. They will need to consider both “money-in” instruments, and notably how to best layer ex-ante and ex-post financing arrangements, as well as “money-out” instruments so that funds provided by “money in” instruments can be effectively used to reduce the impact of a shock.

Governments can layer together a variety of different risk financing instruments to develop a disaster risk financing strategy. As visualized in figure 2, it includes contingency funds/budget allocations designated ex-ante for financing disaster losses; contingent credit lines negotiated ex-ante, which provide governments with immediate access to funds from a credit line following a disaster; risk transfer instruments including insurance, reinsurance or capital market instruments such as catastrophe bonds; ex-post budget reallocations that involve moving funds from one budget category to another; and post-disaster borrowing. These instruments are usually supplemented by post-disaster relief aid from the international community.

FIGURE 2. Disaster Risk Financing Instruments

	Ex-ante Instrument (arranged before a disaster)	Ex-post Instrument (arranged after a disaster)
Risk Retention (changing when how one pays)	• Contingency fund or budget allocation • Line of contingent credit	• Emergency budget reallocation • Emergency tax increase • Post-disaster credit
Risk Transfer (removing risk from the balance sheet)	• Traditional insurance/reinsurance Index insurance, reinsurance or derivatives (e.g agriculture index insurance, weather index insurance) • Capital market instruments	• Discretionary post-disaster relief aid from development partners

Source: Cubas *et al.* (2020) *Disaster Risk Finance for Adaptive Social Protection.* World Bank Group.

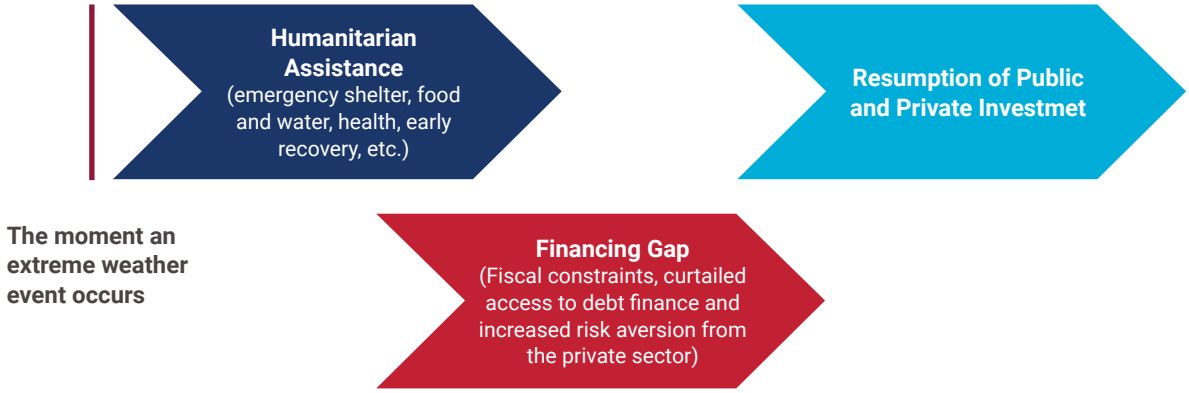
Governments can optimize their financial coverage by combining different instruments to protect against events of different frequency and severity. Determining the right mix of instruments depends on the unique conditions of each jurisdiction but successful international practices suggest the adoption of a risk-layering approach that combines risk retention instruments such as budget allocation/contingent credit lines and risk transfer instruments such as insurance in function of the frequency and severity of disasters.

Ex-post funding is typically untimely, unpredictable and insufficient, and carries unacceptable humanitarian and economic consequences[18]. Over the past two decades, financing requirements for the United Nations-coordinated humanitarian response plans have risen about 30-fold, from $2 billion in 2000 to a record high of $57 billion in 2023. In 2023, the UN received just 43% of the money it appealed for to help people in need – its biggest ever shortfall[19]. Furthermore, years can lapse between the end of relief assistance and the resumption of public and private investments in the aftermath of a disaster, as the private sector becomes increasingly risk adverse and public finance is depleted. This reconstruction financing gap can lead to households being unable to swiftly finance reconstruction after a disaster or allow only incomplete repairs. Households and firms will need to recover while relying on savings or credit, making them vulnerable to slipping into a vicious cycle of debt.

Ex-ante disaster financing arrangements are essential to enhance the resilience of vulnerable groups to climate shocks. Pre-arranged financing can reduce crisis impacts and costs by enabling swifter and more effective responses. This can reduce reliance on slow emergency appeals and enable governments and communities to plan more effectively and act immediately when disasters strike. Yet less than 2% of the $76 billion spent on crisis disaster financing in 2022 was pre-arranged. Of this already tiny proportion, only 1.4% of those reached low-income countries. The High-Level Panel on Closing the Crisis Protection Gap (2025) calls for the proportion of international crisis finance which is pre-arranged to increase by tenfold in 10 years.

Disaster financing strategies should aim to shift from ex-post to ex-ante mobilization of financing to enhance to improve the timeliness, predictability and adequacy of relief support and close the early recovery funding gap. As part of these ex-ante financing arrangements, disaster risk financing strategies should identify measures needed to incentivize broader insurance coverage. Insurance can provide a reliable and timely

FIGURE 3. The Recovery Financing Gap Barrier to Build Back Better



Source: Authors

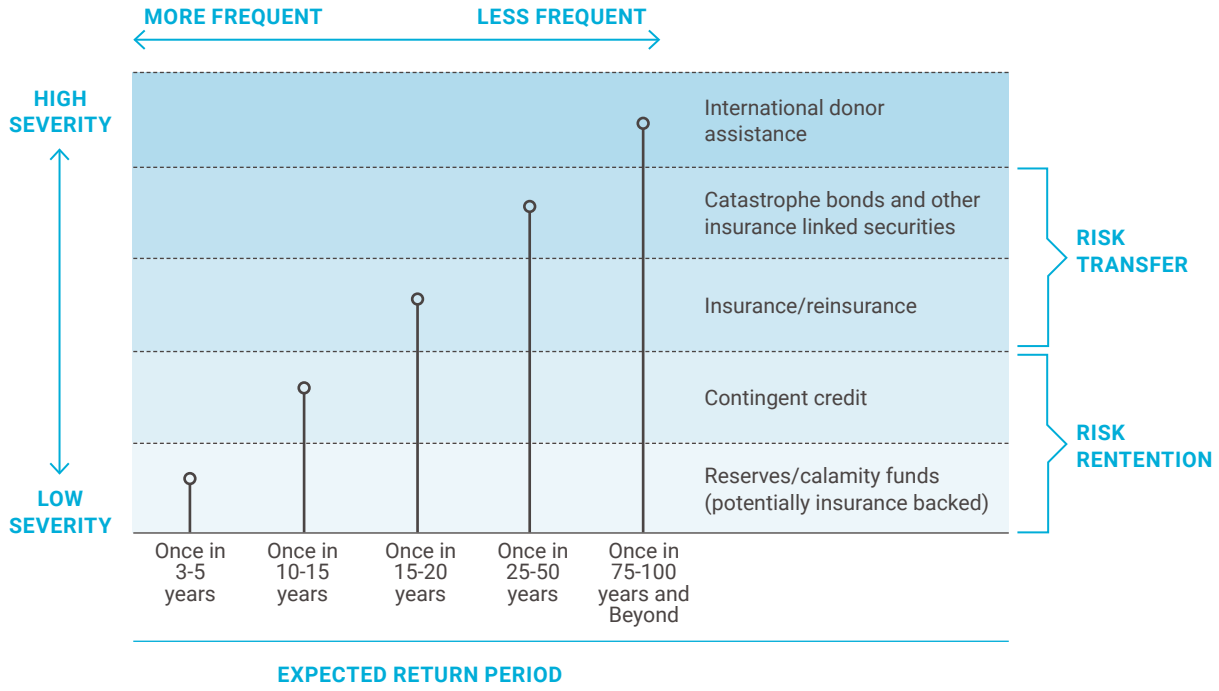
source of finance to close the reconstruction gap and build back better, reducing the vulnerability of people to future climate shocks. Even so, insurance is a relatively expensive form of disaster risk finance, by and as visualized in figure 4, it is more cost effective when employed to cover low frequent hazards with potentially high impacts. Insurance solutions must be complemented by other ex-ante risk finance solutions to ensure adequate funding for relief and recovery, such as emergency credit lines or catastrophe bonds.

The development of a disaster risk financing strategy should also identify when insurance mechanisms have limited applicability and uncertain outcomes. There are a variety of risks and contexts – particularly conflict-affected and fragile states – where the existing suite of insurance mechanisms do not apply. This will call for the development of alternative multi-layered risk management strategies and/or the design of innovative insurance mechanisms responding to the unique requirements of concerned contexts. It also advocates for a reform of ODA criteria to prioritize concerned countries.

Research on 200+ countries conducted for the High-Level Panel on closing the protection gap showed that fewer than 30 countries have developed standalone disaster risk financing strategies, and several of those were done to meet IFI lending conditions. For example, IMF sometimes requires the development of disaster risk financing strategies as part of the policy frameworks attached to the IMF's Resilience and Sustainability Trust. In November 2024, the G20 issued its first Ministerial Declaration on Disaster Risk Reduction, advocating for national financial strategies to remedy this situation.

The thematic report on finance[20] of the 2024 Global Report on Synergy Solutions for Climate and SDGs highlighted the need to develop integrated national investment plans that align finance with domestic priorities and maximize synergies across sectors and actors . To break existing silos between development, climate and disaster risk management efforts, governments should embed these disaster risk finance strategies within their integrated national investment plans as well as their national development strategies, Nationally Determined Contributions (NDCs), National Adaptation Plans (NAPs), and sectoral strategies.

FIGURE 4. Risk Layering and the application of financial instruments



Source: Asian Development Bank (2013) *Investing in Resilience: Ensuring a Disaster Resistant Future* adapted from Cummins and Mahul (2009)

This would promote a risk-informed development approach and integrate risk considerations into all development interventions. Risk-informed development ensures that decisions in economic policies, financial budgeting, and infrastructure investments account for the financial and social impacts of disasters. It would enable proactive measures that not only reduce exposure but also strengthen financial resilience. It will foster a shift from a reactive model of relief and recovery to a proactive framework where governments, businesses, and households collaboratively invest ex-ante in risk mitigation and financial resilience to manage escalating threats.

II. INCENTIVIZING INSURANCE UPTAKE AND OFFER

Insurance penetration remains low in many Global South countries due to structural barriers such as limited access to long-term affordable capital, which constrains insurers' underwriting capacity; under-developed or fragmented market regulations; weak regulatory enforcement capacity; lack of technical knowhow; lack of data; limited consumer awareness; predominance of informal economies; and overall small insurance market sizes limiting investment in product development and distribution networks. Table 2 summarizes key barriers to closing the catastrophe insurance gap. (Re)Insurance cost, small market size, weak regulatory enforcement, limited data availability and capacity are particularly challenging in EDMEs.

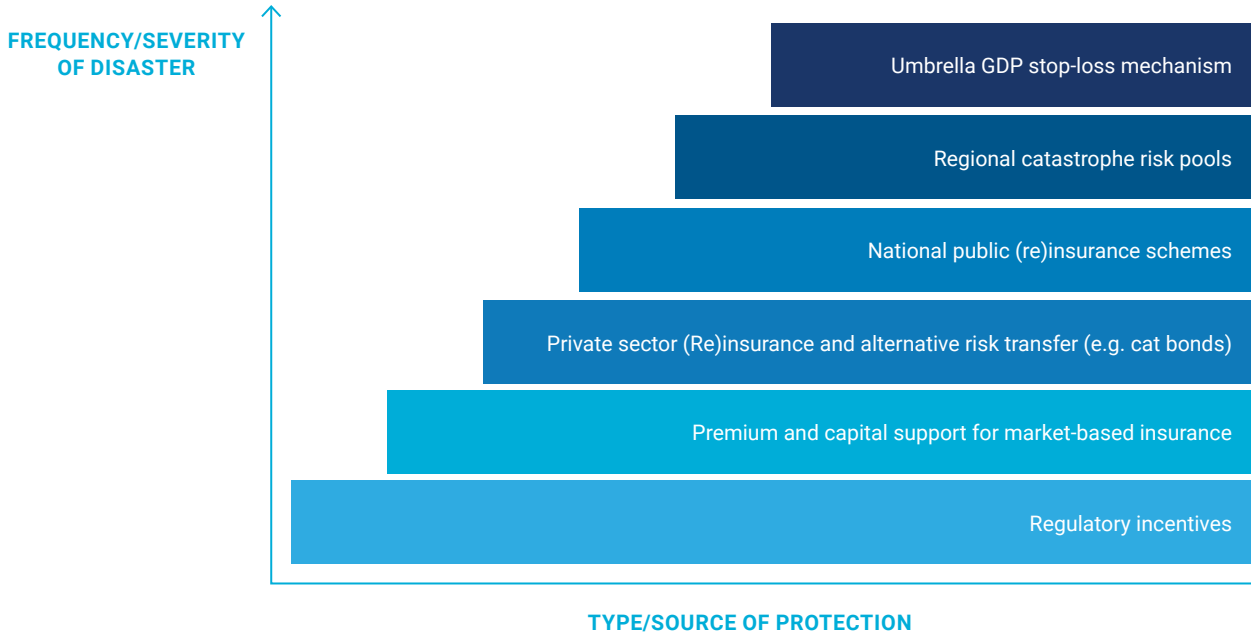
TABLE 2. Barriers to Closing the Insurance Protection Gap in EDMEs

	Factors lowering insurance demand	Factors lowering primary insurance supply
Risk Identification	Low level of risk awareness and limited information on hazard risks for a specific location Underestimation of the likelihood of being affected by natural catastrophes	Uncertainty and unpredictability of evolution of risks (e.g. due to lack of (granular) data, modelling complexity)
Scope of coverage	Incorrect knowledge or assumptions on the scope of coverage for natural catastrophes (e.g. due to unclear terms and conditions in insurance contracts)	Challenges in diversifying risks at local national or regional level
Cost of (re)insurance	Unaffordability of premiums or high perceived cost of insurance	Limited access to affordable long-term capital constraining insurers' underwriting capacity Increasing reinsurance cost
Regulatory risk	Weak supervision of insurance industry Weak regulatory incentives to invest in risk reduction and adaptation	Lack or limited enabling regulations to facilitate the development of risk transfer instruments Weak regulatory enforcement
Market risk	Previous negative experience with insurance claims (lack of trust) Perception that taking out insurance is complex and time-consuming	Small market size and predominance of informal economies Lack of private (re)insurance market competition
Development co-benefits	Policy holders do not capture the broader economic benefits of insurance	Insurers do not capture the broader economic benefits of insurance
Moral hazard	Expectation of government support in case of disaster Lack of (regulatory) incentives for risk prevention	Expectations of government support in case of disaster Lack of (regulatory) incentives for risk prevention
Capacity	Lack of understanding of insurance products Lack of insurance distribution channels (access)	Lack of insurance distribution channels (supply) Lack of supportive infrastructure to issue cat bond

Source: Adapted from EIOPA (2024) *EIOPA and ECB Joint Paper: Towards a European System for Natural Catastrophe Risk Management.*

The adoption of ex-ante disaster financing instruments is heavily dependent on the political commitment of governments. The State can leverage a range of policy and financial instruments to encourage a broader uptake of insurance solutions to reduce the protection gap at the societal level. Figure 5 visualizes this range of public interventions in the form of a policy and financial instrument ladder, following an increasing role for public funding.

FIGURE 5. Public Intervention Ladder to Close the Insurance Protection Gap



Source: Adapted from EIOPA (2024) *EIOPA and ECB Joint Paper: Towards a European System for Natural Catastrophe Risk Management.*

Regulatory interventions constitute the foundational rung of the ladder and should generally be deployed first as they create an enabling environment for complementary public interventions. They can anchor the obligation to invest in prevention and insurance solutions in legal instruments, such as construction law, water regulation or land zoning. They can also incorporate a mandatory element, requiring either mandatory take-up or offer of insurance by law. The insurance protection gap is partly due to consumer behavior. For low frequency events, policyholders may be unwilling to pay for insurance coverage or expect government compensation for such events. OECD found that the share of economic losses insured for flood events between 2000-19 was 32% in member countries in absence of insurance requirements, 48% in presence of broad mortgage-related requirements and 63% when inclusion is automatic.

Mandates can also be placed on service providers. Since 2005, India has required insurers to underwrite a portion of their business in vulnerable social and rural sectors, a policy that has gradually built the necessary infrastructure for deeper insurance market penetration. Over time, this approach has contributed to the creation of a new insurance market for underserved populations. Mandatory coverage is often combined with specific pricing rules and premium structures, which would need to be updated regularly in the face of climate change.

The second rung of the ladder is to deploy financial instruments to incentivize the provision and uptake of private disaster risk insurance. Governments are exploring a range of concessional support tools to narrow the protection gap and preserve the availability, accessibility and affordability of insurance policies. Common blended insurance approaches include a mix of subsidies to increase the affordability, accessibility and availability of premium insurance (Box 1).

In principle, subsidy strategies should be designed to facilitate their full or partial phasing out once market failures have been overcome (e.g. when fixed costs are distributed sufficiently to reach viability through increased economies of scale)[22]. In many contexts where disaster risk insurance markets are new and emerging and suffering from various inefficiencies, it will be essential to pair premium and capital support (PCS) subsidies with investment in addressing structural barriers in insurance markets[23]. The fear of long-lasting PCS subsidy requirements might prove a barrier for the public sector domestic to engage in insurance market development and therefore care should be given to consider from the onset performance indicators for the full or partial phase out of PCS from the onset.

Global reinsurance and capital markets constitute the third rung of the risk instrument ladder. They play a critical role in providing an additional layer of loss absorption capacity and diversifying catastrophe risks internationally. Simply put, reinsurance is insurance for insurance companies. In the case of catastrophe risk transfer, an insurance company can buy reinsurance protection against losses exceeding a certain level. Reinsurance is critical to insure climate risks. Natural disasters create spatially correlated losses for insurers[24]. Reinsurance is normally one of the largest costs for primary insurers. As the costs of the climate crisis escalate, insurers are finding it increasingly difficult to secure reinsure at affordable prices.

BOX 1. Concessional Support Tools to Incentivize Insurance Uptake

Set of concessional support tools:

- **Premium financing:** direct grants or concessional loans to countries for a portion of insurance premiums
- **Capitalization:** Provision of concessional capital (equity or debt, e.g. with reduced or no interest) necessary to ensure adequate solvency of insurance vehicles
- **Payment of reinsurance premiums** required for efficient reinsurance coverage of a risk pool, including coupon payments for catastrophe bonds
- **Subsidizing operational costs,** incl. administrative, transaction and start-up costs
- **Technical Support and Capacity Building,** incl. modelling, product structuring, risk know-how and market development
- **Financing risk reduction measures** that lead to foreseeable reductions in annual average losses and therefore savings in premiums
- **Concessional credit,** e.g. via reduced interests for contingent credit instruments

Source: InsuResilience Global Partnership Secretariat (2019) *Concessional Support for Climate and Disaster Risk Finance and Insurance.*

Catastrophe (cat) bonds and other insurance-linked securities (e.g., catastrophe swaps) can provide a solution to preserve re-insurability. An entity that wants to transfer catastrophe risk to the capital markets would enter a catastrophe reinsurance contract with a special purpose vehicle (SPV), a reinsurance company. The SPV will issue a bond with the payment of principal and interest contingent on there not occurring a catastrophe causing specified damage. The market for cat bonds started in the mid-1990s in the aftermath of Hurricane Andrew. Cat bonds reached $35.5 billion in capital outstanding at the end of 2022, compared to $467 billion in traditional reinsurance capital by August 2022[25].

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CAT bond markets remain underdeveloped in emerging and developing economies. CAT bonds have mainly been issued to cover certain named perils in Europe, Japan and the United States, while the coverage for developing countries represents a much smaller share. A strong legal and institutional framework for disaster risk financing is essential to facilitate the development of risk transfer mechanisms such as CAT bonds. For example, in the Philippines, the rollout of other disaster risk financing programmes – such as the Parametric Catastrophe Risk Insurance Program, which preceded the CAT bond issuance – provided the country with an enabling environment and valuable lessons for CAT bond adoption. One such lesson was the need to improve the availability and quality of disaster-related data for the development of more sophisticated catastrophe models and to clarify the post-disaster responsibilities of stakeholders[26].

At the fourth rung of the risk instrument ladder, public authorities can directly act as a reinsurer for large claims or as a "insurer of last resort" for those no longer able to access insurance from private companies[27]. As an increasing number of insurance companies are withdrawing their cover from regions particularly affected by climate change, governments worldwide are directly stepping in as a reinsurer/insurer to maintain the insurability of vulnerable communities and avoid economic dislocation (FAIR in USA, UK Flood Re in UK, NatCat in France, etc.).

However, these schemes could struggle to remain sustainable with increasing climate change impacts widening the gap between the true risk price and the subsidized premium. For example, France is one of the very few countries where the constitution guarantees that all citizens would receive adequate compensation in the event of loss and/or damage caused by a natural phenomenon[28]. The natural disaster compensation scheme (NatCat) was financed by 12% of the premium of the basic insurance policy covering property other than motor vehicles, and 6% of premiums for fire and theft insurance. For the past five years, the CatNat plan has been in deficit. The premium on basic insurance policy was raised from 12% to 20% in January 2025 to address NatCat's deficit.

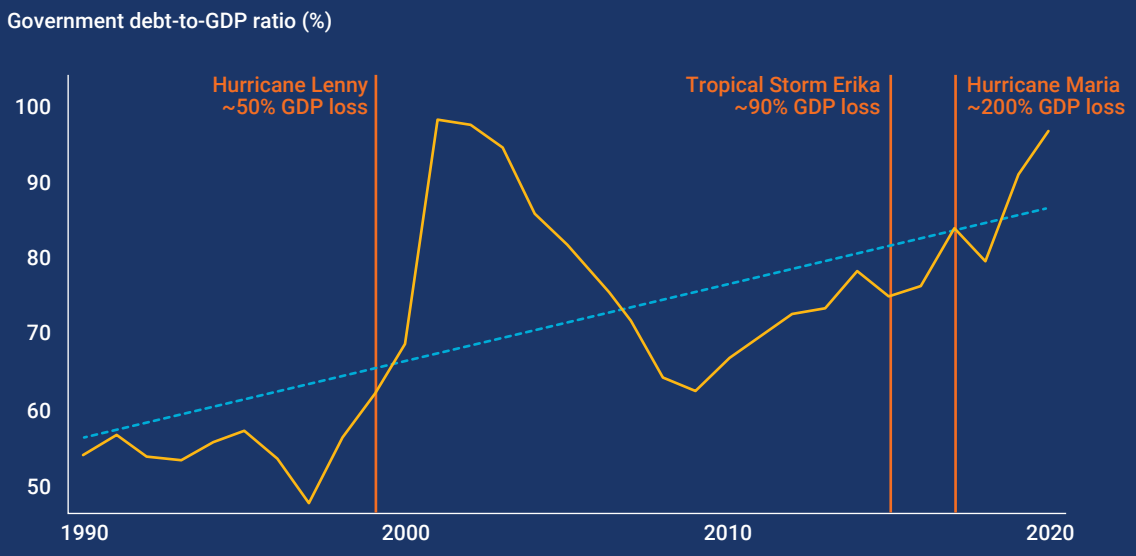
Similarly, Fair Access to Insurance Requirements (FAIR) Plans were created in the USA in 1960s to make insurance available in areas that had abnormally high exposure to risks. Today, at least 30 states have developed FAIR plans and are assuming ballooning liabilities. For example, Florida's taxpayers by 2012 had assumed liabilities worth some $511 billion — more than seven times the state's total budget — as the value of coastal property topped $2.8 trillion.

Regional catastrophe risk pools, such as the African Risk Capacity and the Caribbean Catastrophe Risk Insurance Facility, could offer another solution to partly address this challenge and compose the fifth rung of the ladder. Sovereign risk pools enable vulnerable countries to spread risk and negotiate preferential insurance and reinsurance rates. Several regional risk pools protecting against natural disaster risks and using parametric triggers have been established since 2007. Examples include: the Caribbean Catastrophe Risk Insurance Facility (CCRIF); the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI); and the African Risk Capacity (ARC). While risk pools are particularly relevant for small economies where a single catastrophe can affect the whole country and for countries without a national insurance scheme, they hold the potential to lower premiums for policyholders worldwide. An analysis of a flood risk pool including 12 European Economic Area countries could lower the premium for policyholders by around 26%[29]. A similar analysis from the World Bank for PCRAFI shows a premium reduction of more than 40%[30].

Finally, and as the sixth rung of the risk instrument ladder, climate change calls for new forms of insurance to address this unprecedented challenge to the world economy. Small and vulnerable economies can lose over 100% of their GDP from natural disasters in a single day, ruining any chance to progress on the SDGs. For instance, Grenada suffered losses of 200% of GDP following Hurricane Ivan in 2004, Dominica faced losses of 225% of GDP after Hurricane Maria in 2017. Umbrella stop-loss capping losses to a percentage of the national economies are among the innovative insurance solutions proposed to avoid a reversal of decades of development gains in highly vulnerable small economies (Box 2).

BOX 2. Umbrella Stop-Loss Mechanisms

Small and vulnerable economies can lose over 100% of their GDP from natural disasters in a single day, ruining any chance to progress on the SDGs. The figure below visualizes the impact of hurricanes on the GDP of Dominica 1990-2020.



Note: The figure shows the evolution of Dominica's government debt-to-GDP ratio (blue line) against the major extreme events (orange vertical lines). Dashed blue line shows the linear trend.
Source: Based on (IMF, 2021).

Source: IMF (2021) *Building Resilience in Asia and the Pacific: Natural Disasters, Climate Change, and Fiscal Policy.*

These new forms of insurance will require new forms of international financial support. A modelized exercise conducted by CISL found the insurance premium required to protect 11 SIDS from economic losses exceeding 10% GDP equivalent in current US dollars would be $365 million per year by 2050. Debt-stressed, climate vulnerable countries can ill-afford to finance any of the discussed schemes on their own. The newly established Loss and Damage Fund under the UNFCCC could play a critical role in helping EDMEs close the protection gap in partnership with the insurance industry. This would require capitalizing it at scale. Several proposals have been developed to capitalize the L&D Fund at scale, including the application of the polluter-pay-principle either at the jurisdictional level (levy on cumulative emissions of countries, etc.); at the producers' levers (taxes on profits from the oil and gas industry; etc.) or on individual consumption (wealth taxes, etc.).

III. BUILDING FORWARD BETTER

Recognizing the urgent need to reduce risks amid expanding and intensifying global challenges, 196 Member States of the United Nations signed the Sendai Framework in March 2015—the same year as the signing of the UNFCCC Paris Agreement and the adoption of the 2030 Agenda for Sustainable Development and its 17 SDGs. The goal of the Sendai Framework is to *"Prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience"*[31]. Swiss Re estimates that investing in risk prevention and reduction can be up to 10 times more effective than rebuilding[32]. For its part, the European Investment Bank estimates that for every €1 invested in prevention, €5 to €7 is saved in recovery costs[33]. According to US Chamber of Commerce, every $1 invested in disaster preparedness can save $13 in economic impact, property damage, and cleanup costs[34]. This includes $6 in reduced damages and $7 in preserved jobs, income, and economic output.

In addition to its role in building back better in the aftermath of a crisis, insurance instruments can also enable countries to build forward better by incentivizing investment in prevention and climate adaptation and complement public policies. Box 3 lists seven mechanisms recommended by the UN Office for Disaster Risk Reduction (UNDRR) and the International Cooperative and Mutual Insurance Programme (ICMIF) to leverage insurance instruments to build forward better[35].

Governments shoulder the main responsibility to promote risk-informed development and strengthening their capacity to tackle the underlying risks that amplify hazards into disasters and push areas towards un-insurability should be regarded as a priority area for support. For example, Governments are tasked with spatial planning, red-zoning and incentivizing housing development in safe areas, yet this continues to be a struggle on different levels with regards to adequate risk planning[36]. The number of people living in flood plains increased by 114% and in cyclone-prone coastlines by 192% during the 40 years from 1970–2010 and is expected to keep rising in the coming years[37]. Civil planning and engineering choices by government that adequately factor in future risk can reduce the exposure of property and people and their coping capacity.

Governments can also support the incorporation of investment in prevention in the pricing of insurance premiums through the provision of data. Limited information on hazard risks for a specific location prevents insurers from determining the true risk and may deter them from providing insurance solutions.

BOX 3. Seven Mechanisms to Build Forward Better

Direct mechanisms – for insurance products to reduce disaster risks:

1. Apply variable pricing of insurance to provide incentives for risk reduction
2. Include prerequisites and exemptions to provide incentives for risk reduction
3. Ensure investment reduces and prevents risk and builds resilience

Indirect mechanisms – for insurance providers to reduce disaster risks:

4. Raise awareness of the systemic nature of risks and provide transparent information and advice for reducing hazards, exposure, and vulnerability
5. Build and share capacity and technology for risk modelling, analysis and monitoring
6. Promote and enhance local social capital for responding to disasters and innovating to reduce risks
7. Collaborate with the public sector to signal unsustainable development and support decision making towards disaster risk reduction and risk-informed investment while closing protection gaps

Source: ICMIF and UNDRR (2021) *From Protection to Prevention: The Role of Cooperative and Mutual Insurance in Disaster Risk Reduction.*

For those areas already covered by an insurance solution, limited information on individual actions taken by specific businesses and households to reduce risk prevents insurers from adjusting insurance premiums accordingly[38]. Lack of data on risk factors in exposed areas and potential extent of financial impacts are also a key barrier for businesses and people to make informed decisions to reduce their risk or purchase insurance. Finally, a lack of data can contribute to inferior risk management decisions by policy makers.

Several governments are endeavoring to address this collective action failure. In early 2023, for example, the US Senate Budget Committee began a series of hearings examining the risks that climate change poses to insurance, mortgage, and property markets in coastal and wildfire-exposed communities. The data collected confirmed that it was climate change that was driving increasing non-renewal rates, as the counties that were most exposed to climate-related risks such as wildfires or hurricanes were the counties seeing the highest non-renewal rates. This data can support a range of policies, including substantiating mandate to discount insurance premium for businesses and people investing in climate-proofing of their physical assets.

The development of platforms that collect and share real-time environmental data at the global level would improve the accuracy of risk models for reflecting prevention of investment in the pricing of insurance policies. Governments could play an essential role in incentivizing all market players, from project developers, lenders and insurers, to share detailed data throughout the lifecycle of climate resilient investments. For example, the Africa Risk View (ARV), a risk analysis tool developed by WFP, which combines weather and crop data with data on vulnerable populations, has a wide range of potential applications for governments, development and humanitarian actors to support the development of innovative insurance solutions to both build forward and build back better.

Physical capital is by nature exposed to physical climate risks. Floods, storms or fires can cause interruptions in the services provided by infrastructure assets and generate losses in revenues and increases in costs that affect the cash flows of the infrastructure or project. A key challenge to build forward better is to better price investment in prevention in the cost of financing. The Coalition for Climate Resilient Investment found that integrating climate risk into infrastructure design from the onset can lead not only to significant reductions in the costs of climate adaptation measures later but also improve in the quality of revenue streams and the return on investment .

However, the reduced exposure of climate resilient infrastructure to climate risk is seldom factored in their financing costs due to: (i) the absence of universally accepted valuation methodologies for low emission, resilient infrastructure; (ii) the lack of common and trusted green standards and labels for climate resilient financial products; (iii) the limited track-record of climate-resilient investments; and (iv) the uneven capacity of institutional investors and financiers to assess the risk-reward profiles of climate investments. These barriers result in a systematic mispricing of low emissions climate resilient assets.

As experts in physical risk modeling and financing, insurance companies can partner with public authorities to establish an enabling environment to build back better. They can update risk weighting for climate resilient infrastructure to enable financiers to better price investment in prevention in their financing costs. Insurers can also directly incentivize investment in prevention through the terms and conditions of their insurance policies. Some insurers are implementing premium reduction schemes to encourage investment in climate resilience. For example, Suncorp's "Cyclone Resilience Benefit" rewards customers in North Queensland with premium reductions of up to 20% to make their homes more cyclone resilient. Additionally, Suncorp provides a no-fee, low-interest bank loan designed to help its customers finance mitigation improvements made to their homes to make them more resilient to cyclone damage[40]. Nevertheless, policyholders are not consistently rewarded at present for their risk reduction measures worldwide[41]. To remedy this situation, some jurisdictions are experimenting with legislation requiring insurers to offer discounts to people who make their homes more resilient against natural hazards. For example, several US States require that insurers give discounts to homeowners who install hurricane-resistant or fire-resistant roofs or make other changes to reduce their risk to extreme weather events, with the idea that (re)insurers will have to pay out less money as a result.

Ecosystem degradation is both a cause and a consequence of climate change—but it can also be a potential solution. Nature-based solutions (NbS) also play a vital role in preventing and reducing disaster risks, an emerging field that is gaining increasing recognition in climate resilience strategies. Investments in ecosystems such as wetlands, mangroves, and forests can act as natural buffers against climate risks while simultaneously supporting biodiversity and livelihoods. In some situations, nature-based solutions that can reduce the severity of extreme weather events such as floods or drought through absorbing and retaining water might be the best if not the only option to preserve some types of physical capital in the face of accelerating climate change (see Box 4).

Studies have shown that mangroves alone provide flood protection benefits exceeding $65 billion every year[42]. Insurance mechanisms can be linked to these solutions, creating incentives for conservation while reducing long-term losses. By integrating NbS into risk financing strategies, countries can develop holistic resilience frameworks that balance risk reduction, financial protection, and sustainable development. Integration of climate adaptation measures in insurance products requires not only innovative products

BOX 4. The Choluteca Bridge in Honduras

Central America is a region notorious for storms and hurricanes. So, when it decided to build a new bridge over river Choluteca in 1996, the country wanted to ensure it would withstand the extreme weather conditions. The new 484-metre-long bridge over the river Choluteca solid bridge opened to the public early in 1998.

In October that year, Hurricane Mitch hit Honduras. It destroyed about 70% of the country's crops and an estimated 70–80% of the transportation infrastructure. There was 75 inches of rain in four days – the equivalent of what they receive in six months. The river Choluteca swelled and flooded the entire region. 7000 people lost their lives. All the bridges in Honduras were destroyed. All, except one. The new Choluteca bridge remained unaffected. But there was a problem. The flooding forced the river Choluteca to change course. It created a new channel, and the river now flowed beside the bridge, not under, but beside the bridge.

Sources: Iyer, P. (2020) *The bridge on the River Choluteca.* Businessworld, 23 August. Available at: www.businessworld.in/article/the-bridge-on-the-river-choluteca-311912. & Ladva, A. (2020) *Lessons in Life – The Choluteca Bridge.* Available at: www.itstimetomeditate.org/lessons-in-life-the-choluteca-bridge.

design but also coordination between insurers and public authorities. For example, nature-based solutions will sometimes require adopting a territorial approach, as for the possible reforestation and integrated management of the Choluteca watershed. State certification of risk assessment practices can also help the recognition of adaptation measures in insurance contracts. For example, the FORTIFIED programme of the Insurance Institute for Business and Home Safety (IBHS) provides recommendations on climate-related risk prevention measures related to wind, hail and wildfire risks[43].

IV. INCLUSIVE INSURANCE SOLUTIONS

Risk transfer solutions can be provided to governments (macro-level), institutions, local governments and aggregator groups (meso-level) and individuals, with microinsurance specifically targeting households or individuals (micro-level). Encouraging inclusive insurance that serves low-income households, and small enterprises can help shift the burden from governments and international relief and recovery aid providers towards sustainable market-driven mechanisms.

Inclusive insurance schemes, like regular insurance, are already available for a wide variety of risks, include crop insurance, livestock/cattle insurance, insurance for theft or fire, health insurance, term life insurance, death insurance, disability insurance, and insurance for natural disasters. Inclusive insurance preserves the insurability of vulnerable populations by strengthening their resilience through affordable risk mitigation, economic participation, and social protection. By providing accessible coverage, it enables low-income individuals to manage risks without depleting resources, fostering economic stability and investment. Additionally, scale up micro-insurance could in theory complement social protection systems by filling coverage gaps, ensuring a more comprehensive safety net against shocks. However, this would require a concomitant and coordinated scaling up of both inclusive insurance and adaptive social protection systems.

The 2023 edition of The Landscape of Microinsurance finds that up to 330 million people were covered by microinsurance products provided by 294 insurance institutions in 36 countries in 2022. A total of $5.8 billion in premiums were collected. This represents about 15% of the $41.4 billion estimated market size across the 36 countries[44], highlighting the potential and the need for expanded access to affordable and sustainable risk financing solutions.

Expanding inclusive insurance requires addressing structural barriers that hinder uptake, which can be categorized into supply- and demand-side challenges. Some of these barriers are germane to the whole insurance industry previously discussed (see Table 2). Others are specific to low-income and highly vulnerable groups. Specific or particularly acute supply-side barriers include high transaction costs, inefficiencies in conventional insurance operations that are not well-suited for currently uninsured, and limited distribution channels, which are crucial for reaching target customers effectively. On the demand side, lack of trust in insurers, limited financial literacy, and affordability constraints continue to impede adoption.

However, innovations in product design, distribution, regulatory enhancements, and public-private partnerships have demonstrated promising pathways to overcoming these challenges. Notably, advancements in product development and delivery methods are propelling the microinsurance landscape by lowering costs and enhancing accessibility. Collaborative models—such as partnerships with mobile network operators (MNOs) and the bundling of insurance with financial services—have proven effective in increasing uptake among underserved populations. Aligning distribution channels with client preferences—be it through mobile money platforms, value chains, or embedding insurance within credit products—improves accessibility and fosters sustained engagement.

Bundling of insurance within a broader range of protection services can also accelerate user uptake. For example, R4 is an integrated climate risk management model combining four risk-management strategies: improved resource management through nature-based solutions or improved agricultural practices (risk reduction); access to insurance (risk transfer); increased investment, livelihoods diversification and microcredit (prudent risk taking); and savings (risk retention). It integrates with social protection schemes by integrating insurance and asset-creating public works (e.g. insurance-for-work) into national safety nets.

On the claim design front, parametric insurance, which disburses payments based on predefined triggers like specific rainfall levels or wind speeds, has gained momentum in agriculture and climate risk mitigation. Organizations such as ACRE Africa, Blue Marble, and MiCRO utilize satellite data to provide index-based insurance products to smallholder farmers, thereby reducing administrative expenses and ensuring prompt

payouts. On the delivery side, mobile-based microinsurance models have further enhanced accessibility, especially in areas with limited formal banking infrastructure. Companies like BIMA, Turaco, and Inclusivity Solutions have demonstrated how digital platforms can streamline premium payments and claims processing, delivering seamless customer experiences.

While many of these innovations are in the nascent stages of commercial success, some pioneer micro-insurance schemes are demonstrating the potential of microinsurance business models to reach scale and be self-sustained. Launched in 2002, the Zambian Farmer Input Support Programme (FISP) has for example, insured over 1 million farmers in 2024 while providing payouts of $38 million. Its overall ambition is to provide farmers with subsidized agricultural inputs, while building resilience against climate shocks. The Ministry of Agriculture in partnership with WFP has built a self-sustained and scalable market-driven model for microinsurance leveraging insurance providers like Mayfair and Pula Advisors offering parametric weather index insurance while bundling it with digital input vouchers. Premiums stood at 5-10% of the input value, while payouts were triggered by satellite-monitored indicators (drought, excessive rainfall, or poor vegetation (NDVI)). End-to-end digitization of enrollment, payment and claims via AgroTech and e-voucher systems ensured transparency and quick compensation. Today, the model operates without government subsidy and is attracting private investment.

As for macro- and meso-insurance, regulatory instruments can accelerate micro-insurance uptake. As an illustration, significant barrier to adoption is the lack of trust in insurance providers. This barrier is particularly acute for low-income consumers. They view insurance as unreliable due to opaque policy terms, slow claims processing, and poor perception. To overcome these issues, insurers must implement customer-centric strategies throughout the insurance value chain. Transparent engagement strategies are essential to address concerns arising from past negative experiences, unclear policies, or insufficient communication from insurers. Simplifying policy language, providing accessible customer service, and expediting claims processing are key steps in building consumer confidence. Governments can mandate a greater level of information disclosure to insurers and facilitate the adoption of customer-centric approaches. Governments are also uniquely placed to ensure that contracts are enforceable, claims are handled transparently, and local governance structures are reliable. In parallel, financial literacy initiatives, integration of insurance mechanisms within social protection programs or agricultural extension services, can enhance understanding of risk management and the advantages of insurance by currently uninsured consumers.

Fiduciary regulations are also pivotal in advancing inclusive insurance. Notably, proportionate regulatory frameworks are crucial for encouraging insurer participation in the inclusive insurance market. For instance, the Insurance Commission in the Philippines has implemented measures to reduce capital requirements for entities specializing in microinsurance. Companies allocating at least 50% of their portfolio to microinsurance benefit from lowered minimum paid-up capital requirements, thus reducing entry barriers and promoting market growth. Similarly, Kenya's Insurance Regulatory Authority (IRA) has established a microinsurance license with eased entry and compliance requirements, facilitating the involvement of specialized players in the inclusive insurance sector.

Incorporating inclusive insurance into national and sectoral resilience strategies amplifies its impact on economic stability and social welfare. India's Pradhan Mantri Fasal Bima Yojana (PMFBY) exemplifies this approach. Initiated in 2016, PMFBY offers comprehensive crop insurance to farmers, covering a range of risks from pre-sowing to post-harvest stages. The program aims to stabilize farmers' incomes, promote the adoption of innovative agricultural practices, and ensure the flow of credit to the agriculture sector. The success of PMFBY is evident in its extensive reach, insuring over 40 million farmers with a total annual sum insured exceeding $32 billion. This large-scale implementation highlights the effectiveness of integrating insurance schemes within broader agricultural and economic policies.

V. ADAPTIVE SOCIAL PROTECTION SYSTEMS

In developing a Disaster Risk Financing Strategy, good practices suggest that the money-out systems should be designed in tandem with money-in instruments. There has been a tendency within DRF for the emphasis to be placed on the design of innovative, triggered financial instruments, without consideration of how payouts will reach affected people until the very end of the process, if at all[45]. Notably, it will be essential to consider the potential of social protection systems to ensure that funds mobilized through "money-in" mechanisms are delivered swiftly, efficiently and transparently.

Social protection systems are a key set of policies and programmes that prevent shocks from impacting people and protect them, especially the most poor and vulnerable, against poverty, vulnerability, and social exclusion throughout their lives. Approximately 18.9% of global GDP, about $15 trillion, is allocated to social protection, of which about a third is spent on healthcare. By reducing multidimensional vulnerabilities, social protection can build resilience and support the achievements of the SDGs, especially SDGs 1, 2,3, 4, 5, 8, 10, 11, 12, 13 and 16[46].

In contexts where social protection schemes are already reaching the most vulnerable, with distribution mechanisms in place, leveraging their systems to channel DRF resources to affected populations ('money-out systems') funds rather than creating or using parallel structures can be an extremely effective mechanisms to channel disaster relief and reconstruction support to households and enhance their ability to recover. These actions are broadly referred to as shock-responsive social protection or adaptive social protection.

By quantifying risks and potential financial losses ex-ante, disaster risk financing strategies can help establish clear rules for the amount and timing of payouts under social protection systems and improve the transparency and accountability of post-disaster relief and recovery spending. Using social protection systems to channel insurance pay-out can also increase the familiarity of low-income populations with insurance and create a demand to narrow the disaster insurance protection gap. Overall, potential benefits of linking DRF with social protection systems are mutual (see figure 6).

Yet, 55% of the world's population do not have any cash social protection. For some regions particularly vulnerable to climate change, the situation is much worse. For example, 83% of Africa's population is not covered by any statutory social protection programme[47]. While this reduces the potential of shock responsive social security systems to immediately enhance the resilience of the most vulnerable, it reveals strong synergies between climate action and the SDGs.

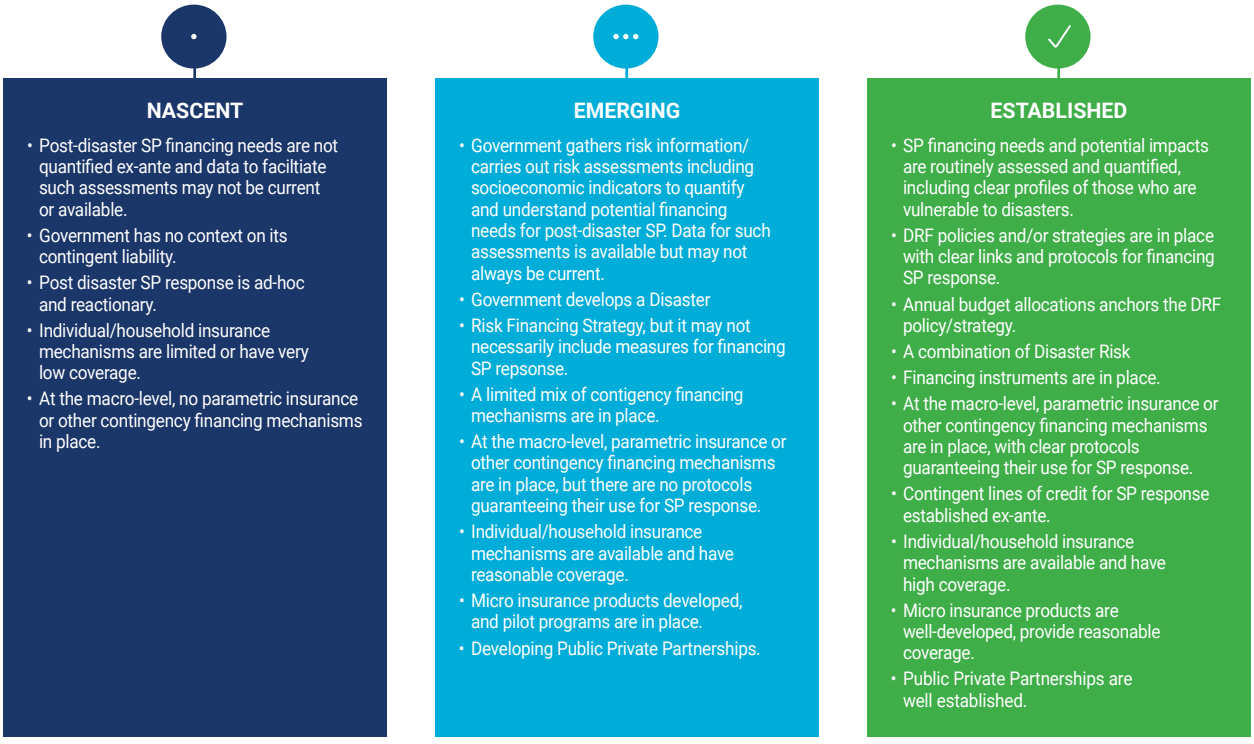
FIGURE 6. DRF and Social Protection Mutual Benefits

Potential benefits from using social protection systems for DRF Potential benefits from DRF to social protection	Potential benefits from DRF using social protection systems for DRF Potential benefits from DRF to social protection
• Ensuring better targeting of payouts to the poor and vulnerable • Quicker distribution • Greater cost-effectiveness/ value for money • Greater transparency and accountability of post-disaster assistance • Improved design • Increased government ownership • Create greater familiarity and demand from low-income population for disaster risk insurance	• Provision of faster finance • Predictable finance • Creates incentives and structure for ex ante design and planning • Provides access to emergency resources beyond humanitarian funding • Strengthen the business case for scaling up/scaling out social protection systems

Source: Adapted from WFP (2023) *Linking Disaster Risk Financing with Social Protection: An Overview of Concepts and Considerations*

Adaptative social protection systems can be gradually built from existing government systems, possibly with international support, and simultaneously enhance the social, economic, and climate resilience of the poor. Social protection schemes could temporarily increase the size of the transfer that beneficiaries receive following a shock; to cover lost income or replace assets lost because of the disaster (vertical scaling up) or additionally, a social protection programme could add more people to the programme from affected areas (horizontal scaling up)[48]. Figure 7 visualizes a framework developed by the World Bank for evaluating the maturity of social protection systems in response to shocks.

FIGURE 7. Developing an Adaptative Social Protection System



Source: Williams, A., and Berger Gonzalez, S. (2020) *Towards Adaptive Social Protection Systems in Latin America and the Caribbean: A Synthesis Note on Using Social Protection to Mitigate and Respond to Disasters and Climate-Related Risks.* World Bank.

FIGURE 8. Summarizes Opportunities To Link Social Protection And Existing Regional Risk Pool Funds

Risk Pool	Hazards Covered	Clients	Opportunity for link to social protection
ARC	Mainly drought, now expanding coverage to tropical cyclone, flood and epidemics	Offer policies to governments or directly to NGOs/Humanitarian agencies (termed Replica). Considering meso-level clients.	Huge opportunity to link to social protection, as contingency plans must be developed prior to a policy being purchased detailing how payouts will reach vulnerable groups.
CCRIF SPC	Tropical cyclone, earthquakes, and excess rainfall	Offer policies to governments. WFP has provided resources to governments to extend or top-up their policies but have not yet bought policies directly.	Governments could choose to channel their payments through a social protection programme but there is no requirement for this, and contingency plans are not required.
Pacific Catastrophe Risk Insurance Company (PCRIC)	Tropical cyclone and earthquake, launching drought and excess rainfall	Offer policies to sovereign governments but looking to potentially expand to humanitarian agencies in 2023.	No links currently – payouts are paid to governments as budget support. Governments could choose to channel their payments through a social protection programme but there is no requirement for this, and contingency plans are not required.
Southeast Asia Disaster Risk Insurance Facility	Flood	Myanmar, Laos PDR, and Cambodia current members but only Laos PDR purchased a 3-year policy.	No links currently – payouts are paid to governments as budget support. Governments could choose to channel their payments through a social protection programme but there is no requirement for this, and contingency plans are not required.

Source: WFP (2023) *Linking Disaster Risk Financing with Social Protection: An Overview of Concepts and Considerations.*

Synergies between disaster risk financing solutions and social protections systems remain underleveraged. Frequently, there is no requirement for ex-ante disaster financing instruments to have specific spending plans and relatively few examples of insurance payouts being channeled through social protection schemes[49]. Figure 8 summarizes opportunities to link social protection and existing regional risk pool funds.

Some countries covered by ARC have included social protection as 'money out' mechanisms stating that all, or a portion, of a payout can go through social protection systems. In the Caribbean, WFP provides top-ups to the tropical cyclone/ excess rainfall policy from CCRIF SPC to increase the number of people covered by the governments' purchased policies, with a proportion of the payouts (if triggered) to be channeled through the government-led social protection programmes with WFP support (see Box 5). Several countries are also considering specific legislations to better link their disaster risk financing and social protection systems. For example, Chile is likely to adopt a formal adaptive social protection policy, and the Dominican Republic has developed a climate vulnerability index (IVACC) embedded in their social registry.

BOX 5. WFP Top-Up Model

The WFP Caribbean's macro-level risk financing aims to develop synergies between disaster risk financing solutions and social protections systems. It operates through a premium top-up model, where WFP supports governments by providing additional funding to top-up insurance policies purchased from the Caribbean Catastrophe Risk Insurance Facility (CCRIF SPC). In the event of a catastrophic event triggered by a tropical cyclone (Belize, Dominica, Saint Lucia) or a rainfall event (Belize) covered by the CCRIF SPC policy, as pre-arranged with WFP, a portion of the payout—based on the estimated modelled loss—will be allocated for cash assistance to vulnerable populations affected by the disaster. This assistance will be disbursed to vulnerable populations affected by the disaster through national social protection programmes. Once the CCRIF SPC policy is triggered, governments are expected to receive the payout within 14 days of the event, with the funds being transferred to the Ministry of Finance, in accordance with the agreements between CCRIF SPC and the governments. In return for WFP's premium support, governments will commit to further strengthening their social protection programmes and systems. Investments will be focused on key areas such as policy and legislation, data and information management, targeting, delivery mechanisms, coordination and financing, with the goal of building more resilient and responsive social protection systems. This WFP-CCRIF top-up model, first implemented in Dominica in 2021, has since been adopted by eight nations across the Caribbean and Central America.

Source: ICMIF and UNDRR (2021) *From Protection to Prevention: The Role of Cooperative and Mutual Insurance in Disaster Risk Reduction.*

VI. A ROADMAP TO OPTIMIZE SYNERGIES BETWEEN DISASTER INSURANCE PROTECTION AND THE SDGS

Closing the disaster insurance protection gap requires collaboration between and beyond the public sector and the insurance industry. Table 3 outlines a multistakeholder roadmap for implementing the main recommendations of this report. The diversity of possible interventions to plan, finance, implement, monitor and evaluate across a range of stakeholders can prove challenging, especially in emerging and developing market economies that face the highest protection gap and have the least resources to address it.

Since the signature of the Sendai Framework, the UN 2030 Agenda for Sustainable Development and the Paris Agreement in 2015, several global initiatives have been launched to close the climate and insurance protection gap. They include the Center for Disaster Protection; the Disaster Risk Financing and Insurance Programme; Global Shield; the Insurance Development Forum; and the Microinsurance Network[50]. In addition, several UN organizations have also established dedicated insurance facilities to assist countries in developing insurance solutions for sustainable development, including the World Food Programme (WFP)'s climate risk insurance solutions; the United Nations Development Programme (UNDP)'s Insurance and Risk Finance Facility; and the United Nations Environment Programme's Forum for Insurance Transition to Net Zero. These global public and private initiatives and multilateral organizations can serve as entry points for countries interested in further fleshing out the roadmap and adapting it to their unique requirements.

Costing this roadmap will be essential to enable policy makers to weigh benefits from measures to close the climate and disaster insurance protection gap against others sustainable development priorities. Quantifying the cost effectiveness of closing the climate and disaster investment gap is an evolving

field. As discussed throughout this thematic report, the cost will depend on various factors, including (i) the respective exposure and vulnerability of geographic regions; (ii) the type of policy and financial instruments deployed to incentivize the uptake and offer of ex-ante disaster financing instruments; (iii) the capacity to encourage risk reduction and prevention; (iv) the development of innovative insurance products to respond to evolving threats and to reach out to underserved population; and (v) opportunities to capitalize on existing social infrastructures such as social protection systems to release funds in a timely and efficient manner.

In terms of cost, a simple extrapolation from existing initiatives would indicate that an investment of $15-25 billion could provide coverage to an additional 3 billion people (see Box 6). While the finance required to close the protection gap could partly come from policyholders through policy instruments such as mandated take-up or financial instruments such as commercial insurance/credit bundles or guaranteed emergency funds for farmers[51], there is a place for long-term premium subsidies[52].

BOX 6. Costing the Policy Roadmap

Understanding the cost involved for combining different financing instruments can help optimize resources based on the severity and frequency of shocks in a given country. The InsuResilience Vision Update 2025 finds that 310 million people globally benefitted from Climate and Disaster Risk Finance and Insurance instruments in climate-vulnerable countries and communities. Increasing prearranged finance from 2 to 20% to close the crisis protection gap, would mean a 10-fold increase from the status quo. Based on the current premium contribution, it would require $24 billion for a sum insured of $99 billion. This would allow 3.1 billion people to benefit from an individual protection of $32 at a $8 premium through a combination of different tools. When zooming in to specific operations, Zambia's Farmer Input Support Programme (FISP) stands out as it has reached over 1 million smallholder farmers with an average premium of approximately $5 per person and coverage of around $200 per farmer offering an outstanding ratio of contribution and protection. WFP's Inclusive Insurance Schemes have offered protection to a total of 3.1 million people globally at a global average premium of $5 for a sum insured of $54, while regional differences show that $5 premium can buy $87 of sum insured in Southern Africa while $6 could buy only $49 of protection in the Asia Pacific Region. Slight differences in the leverage are also experienced when using Macro- vs. Micro-Insurance tools, while the latter yields a slightly higher rate of protection for the same premium. Compared to the global bouquet of pilots and solutions that InsuResilience reports on costing $24 billion to reach 20% of vulnerable populations, hypothetically scaling WFP's Microinsurance to close the crisis protection gap would cost $14.8 billion if it was scaled to reached 3.1 billion people based on the current global average cost. Developing a comprehensive costing of closing the protection gap to go beyond these simple extrapolations should be regarded as a policy priority. It will require detailed data analysis on coverage, premiums, and administrative costs across different programs and more detailed modelling of the global landscape of needs and relevant policy roadmap required to respond.

Sources: Global Shield Secretariat (2025) *Vision 2025 Update. Achievements in 2024.* & WFP (2025) *2024 Disaster Risk Financing: Annual Report.*

These subsidies internalize the external societal benefits of closing the insurance protection gap that cannot be captured by policyholders and service providers. The selection of an optimal portfolio of policy and financial instruments to close the insurance protection gap would reduce the need for premium subsidies and help grow insurance markets to a stage where subsidies can be reduced or phased out.

The appropriate portfolio of policy and financial instruments will vary across communities, industries and countries and across the different development stages of insurance markets. Cost-effectiveness assessments are essential to design, finance, and implement interventions that address these vulnerabilities efficiently. Several of the global initiatives launched to close the climate and insurance protection gap after 2015 could play a critical role in bridging existing data gaps and in facilitating deeper analysis. Additionally, a dedicated knowledge hub could consolidate information from various initiatives, enabling countries to tailor roadmaps to their specific needs and optimize risk reduction strategies.

TABLE 3. A Roadmap to Close the Climate and Disaster Insurance Gap

Stakeholders	Public Sector	Insurance Industry	Development Organizations	Civil Society
Better integrating risks into national development strategies, including national budget planning	• Embedding disaster risk financing in national development plans, NDCs, and sectoral strategies. • Establishing regulatory frameworks to enforce risk-informed budgeting. • Allocating public funds for ex-ante disaster preparedness. • Strengthening institutional capacity for risk assessment and financial planning. • Facilitating multi-stakeholder dialogues to embed disaster resilience into Sustainable Development Goals (SDG) planning.	• Build and share capacity Providing technical expertise on risk modeling and impact forecasting. • Developing public-private partnerships to optimize risk transfer mechanisms.	• Providing technical assistance to governments in developing integrated disaster risk financing strategies. • Supporting data collection and modeling to quantify climate and disaster risks for informed budget planning. • Funding research on cost-effective risk reduction and resilience measures.	• Advocating for the inclusion of disaster risk reduction and climate resilience in national development plans. • Holding policymakers accountable for risk-informed budgeting and financing decisions. • Conducting independent research and policy analysis to highlight the socioeconomic impact of inadequate risk planning.
Incentivizing insurance provision and uptake	• Establishing regulatory incentives to foster insurance market expansion. • Offering subsidies or concessional finance for premium affordability. • Implementing mandatory insurance policies for key sectors. • Strengthening consumer protection regulations to build trust in insurance markets. • Enhancing financial literacy programs to educate citizens on the benefits of insurance.	• Expanding insurance distribution networks to underserved populations. • Innovating new insurance products tailored to emerging climate risks and disaster scenarios. • Enhancing transparency and trust in insurance services. • Supporting financial literacy programs to enhance insurance awareness and trust.	• Offering concessional financing and grants to support insurance market development. • Strengthening regulatory capacity-building programs for governments to oversee insurance markets effectively. • Developing innovative financing mechanisms to improve the affordability and accessibility of insurance products.	• Enhancing financial literacy and insurance awareness among vulnerable communities. • Facilitating collaborations between community groups and insurers to co-design affordable and accessible insurance products. • Advocating regulations that support broader insurance coverage and protect consumer rights.

Stakeholders	Public Sector	Insurance Industry	Development Organizations	Civil Society
Incentivize investment in prevention and building forward better	• Implementing risk-based pricing frameworks to reward resilience investments. • Providing fiscal incentives (tax breaks, grants) for preventive actions. • Enhancing enforcement of building codes and land use policies. • Investing in resilience infrastructure and early warning systems to lower insurance costs.	• Offering lower premiums for policyholders investing in mitigation measures. • Including prerequisites and exemptions to encourage risk prevention. • Developing parametric insurance models aligned with resilience investments. • Investing in resilience infrastructure as an asset manager. • Supporting research on cost-effective adaptation measures. • Divesting from fossil-fuel assets and developing dedicated insurance products to facilitate green investment.	• Funding pilot projects that demonstrate the benefits of proactive risk reduction for insurance affordability. • Supporting insurers in designing premium structures that reward preventive investments. • Developing methodologies to assess the economic impact of resilience-building measures on insurance pricing. • Supporting research on cost-effective adaptation measures. • Supporting blended insurance approaches Collaborating on risk- to lower overall insurance costs.	• Advocating premium structures that reward investments in disaster preparedness. • Facilitating dialogue between insurers and policymakers to align pricing mechanisms with resilience incentives. • Supporting independent assessments to improve transparency in insurance pricing and prevent exploitative practices. • Promoting and enhancing local social capital for responding to disasters and innovating to reduce risks.
Developing inclusive insurance solutions	• Establishing public insurance schemes for high-risk or low-income populations. • Strengthening financial inclusion frameworks to expand access to coverage. • Ensuring equitable distribution of insurance benefits. • Partnering with local organizations to enhance insurance literacy and accessibility.	• Customizing microinsurance and index-based insurance solutions. • Partnering with local organizations for insurance literacy initiatives. • Enhancing affordability through flexible premium structures. • Partnering with governments to offer subsidized insurance schemes for vulnerable communities • Supporting digital innovations to improve access to insurance services in remote areas.	• Funding the development of microinsurance and parametric insurance solutions for underserved groups. • Partnering with local organizations to co-design insurance schemes tailored to community needs. • Supporting digital innovations to enhance the accessibility of insurance services. • Ensuring that gender-sensitive insurance models are integrated into broader social protection initiatives.	• Partnering with microfinance institutions to integrate insurance into financial inclusion initiatives. • Creating grassroots networks to expand outreach for insurance services among informal workers and remote communities. • Providing feedback loops for insurers to adapt policies based on the real needs of underserved populations. • Offering legal and advisory support to ensure fair claims processes for vulnerable individuals.

Stakeholders	Public Sector	Insurance Industry	Development Organizations	Civil Society
Fostering adaptive social security systems to better serve low-income households and SMEs	• Expanding shock-responsive social protection programs. • Integrating insurance into social security mechanisms. • Establishing emergency relief funds for crisis-affected populations. • Facilitating policy dialogues to enhance coordination between disaster risk financing and social security mechanisms. • Strengthening institutional capacity to manage shock-responsive social protection systems. • Encouraging collaboration between insurance providers and social protection agencies for holistic resilience-building.	• Partnering with governments to extend coverage to informal and small enterprises. • Developing insurance-linked safety net programs. • Developing insurance-linked safety net programs to complement social protection mechanisms. • Partnering with governments to extend coverage to informal workers and small enterprises. • Offering financial products that integrate insurance with adaptive social security systems.	• Funding social security enhancement programs. • Facilitating policy dialogues to enhance coordination between disaster risk financing and social security mechanisms. • Strengthening institutional capacity to manage shock-responsive social protection systems • Developing innovative financing mechanisms to encourage greater synergies between social protection systems and ex-ante risk transfer instruments (top-up financing etc.)	• Conducting impact assessments to identify gaps in existing social security programs. • Advocating government policies that integrate insurance solutions into social protection frameworks. • Ensuring inclusivity in social security reforms by amplifying the voices of low-income groups and SMEs.

Conclusion

The only long-term option to preserve the insurability of vulnerable groups is to "avoid the unmanageable" by drastically reduce greenhouse gas emissions to meet the Paris Agreement's goals and to "manage the unavoidable" by improving the resilience of our physical capital, supply chains, and communities in the face of climate-related changes that are already locked in[53]. Gaps in mitigation efforts will increase adaptation needs; gaps in adaptation efforts will increase loss and damage; and gaps in relief and recovery financing will reduce the capacity of countries to prevent and reduce future risks. Closing the climate and disaster insurance gap could contribute to both building forward better (risk reduction and prevention) and building back better (faster recovery and resilient reconstruction) to reduce loss and damage and foster sustainable development.

One of the key findings of this report is that closing the climate and disaster insurance protection gap could generate hundreds of billions of dollars by 2030 and trillions by 2050. Another crucial insight is that public and private sector leaders can utilize a diverse array of policy and financial instruments to achieve this goal. However, addressing this challenge is complex. The optimal mix of policies and financial tools will differ across communities, industries, and countries, as well as across various stages of insurance market development. Successfully closing this gap will require sustained, coordinated efforts from a broad spectrum of stakeholders

Integrating insurance more prominently into development agendas would help drive and sustain efforts to close the protection gap. While financing plays an increasingly crucial role in multilateral agreements, discussions often prioritize grant transfers, lending, debt, and investment structures, leaving insurance comparatively overlooked. Notably, the Sustainable Development Goals (SDGs) indicators do not incorporate insurance metrics[54], with insurance appearing only once in Target 8.10: Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance, and financial services for all. Similarly, the Pact for the Future, adopted at the Summit of the Future on 22 September 2024, dedicates a chapter to financing yet does not address insurance[55].

However, several international bodies have recently emphasized the urgent need to address the insurance protection gap. Under the Italian Presidency, the G7 has introduced a high-level framework for public-private insurance programs aimed at mitigating natural hazards. Likewise, the Financial Stability Board (FSB) and the Basel Committee on Banking Supervision (BCBS) have examined the broader financial implications of this gap. Under the G20 South African Presidency, the Sustainable Finance Group is set to evaluate insurance gaps and their impact on adaptation funding.

Additionally, the Bridgetown Initiative calls on bilateral donors to support the expansion and deepening of insurance markets, particularly through the capitalization of regional risk pools to safeguard critical assets in vulnerable nations. Meanwhile, discussions at UNFCCC COP 29 explored strategies for integrating insurance mechanisms into the evolving Loss and Damage Fund.

The upcoming 4th International Conference on Financing for Development, scheduled to take place in Spain in June/July 2025, presents a pivotal opportunity to consolidate these initiatives. It also serves as a platform to assess necessary reforms of the international financial architecture, ensuring the protection gap is effectively addressed and mitigating climate-related setbacks to development progress.

Recommendations

Integrate Disaster Risk Financing into National Development Plans

Governments should embed disaster risk finance strategies into national budgets, NDCs, and SDG roadmaps to shift from reactive to proactive crisis management.

Adopt a Layered Risk Financing Approach

Use a mix of ex-ante and ex-post instruments—including contingency funds, sovereign insurance, and catastrophe bonds—to manage risks of varying frequency and severity effectively.

Strengthen Insurance Market Regulation and Incentives

Foster enabling environments through regulatory frameworks that promote risk-informed behavior, improve access to capital, and mandate transparent and inclusive insurance practices.

Promote Risk Reduction Through Incentivized Insurance Pricing

Link premium structures to resilience-building investments, rewarding policyholders for proactive mitigation and integrating risk data into product design.

Expand Inclusive Insurance Coverage

Scale up microinsurance and parametric models tailored to vulnerable communities. Support proportionate regulation and integrate inclusive coverage into broader resilience strategies.

Leverage Social Protection Systems for Efficient Fund Deployment

Align pre-arranged financing instruments with adaptive social protection programs to ensure timely, targeted, and equitable disaster response.

Coordinate Multi-Stakeholder Action for Systemic Impact

Engage national governments, donors, insurers, and development banks in sustained collaboration to close the protection gap and enhance SDG synergies.

End Notes

[1] Centre for Disaster Protection (2024) *High-Level Panel on Closing the Crisis Protection Gap.* [online] Available at: www.crisisprotectiongap.org/.

[2] Opening Address at the 2024 Insurance Development Summit: https://www.insdevforum.org/cpt_summits/summit-2024/

[3] Institute and Faculty of Actuaries (2017) *The Future of Insurance: A STEEP change - Policy Briefing.* [online] Available at: https://actuaries.org.uk/media/hfinuduw/policybriefing-the-future-of-insurance-a-steep-change-v1-0.pdf.

[4] OECD (2021) *Managing Climate Risks, Facing up to Losses and Damages. Paris:* OECD Publishing. https://doi.org/10.1787/55ea1cc9-en.

[5] Howden Insurance (2024) *Insurance Innovations Driving $10 Trillion of Climate Finance – Whitepaper.* [online] Available at: www.howdengroup.com/uk-en/news-insights/the-great-enable.

[6] Swiss Re Institute (2024) *Natural Catastrophes in 2023: Gearing up for Today's and Tomorrow's Weather Risks.* [online] Available at: www.swissre.com/dam/jcr:c9385357-6b86-486a-9ad8-78679037c10e/2024-03-sigma1-naturalcatastrophes.pdf.

[7] Banerjee, C., Bevere, L., Finucane, J. and Lechner, R. (2023) Natural Catastrophes and Inflation in 2022: *A Perfect Storm.* Swiss Re Sigma. [online] Available at: https://www.swissre.com/institute/research/sigma-research/sigma-2023-01.html.

[8] Insure our Future (2023) *2023 Scorecard on Insurance: Fifty years of Climate Future.* Available at: https://global.insure-our-future.com/50-years-of-climate-failure-2023-scorecard-on-insurance-fossil-fuels-and-the-climate-emergency/.

[9] O'Neill, S., Schwedel, A., Jones, D. and Brettel, T. (2025) *Bridging the Protection Gap: Affordability, Access, and Risk Prevention. Bain*. [online] Available at: https://www.bain.com/insights/bridging-the-protection-gap-in-insurance/.

[10] Holsboer, J.H. (1995) 'Insurability and Uninsurability: An Introduction', *The Geneva Papers on Risk and Insurance - Issues and Practice*, 20(4), pp. 407–413. https://doi.org/10.1057/gpp.1995.33.

[11] In the insurance industry, an uninsurable risk refers to a situation or exposure that an insurance company will not cover due to its high likelihood or magnitude of loss.

[12] O'Connor, J. et al. (2023) *Uninsurable Future.* UNU-EHS. [online] Available at: https://collections.unu.edu/view/UNU:9297

[13] Holliday, S., Remizova, I. and Stewart, F. (2021) *The Insurance Sector's Contribution to the Sustainable Development Goals (SDGs).* World Bank. [online] Available at: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/560821632197166715.

[14] The SDG Index measures a country's total progress towards achieving all 17 SDGs. SDG Index and Dashboards that assess progress are published annually by the Sustainable Development Solutions Network and the Bertelsmann Stiftung as part of the Sustainable Development Report. This is not an official SDG monitoring tool but instead complements the efforts of national statistical offices and international organizations to collect data on and standardize SDG indicators.

[15] Allianz (2025) *Allianz Global Insurance Report 2025: Rising Demand for Protection.* [online] Available at: https://www.allianz.com/en/economic_research/insights/publications/specials_fmo/250527-global-insurance-report.html.

[16] Han, L., Li, D., Moshirian, F. and Tian, Y. (2010) 'Insurance Development and Economic Growth', *The Geneva Papers on Risk and Insurance - Issues and Practice,* 35(2), pp. 183–199. https://doi.org/10.1057/gpp.2010.4.

[17] Poole, L. (2014) *A Calculated Risk: How Donors Should Engage with Risk Financing and Transfer Mechanisms.* Humanitarian Outcomes. [online] Available at: https://humanitarianoutcomes.org/publications/calculated-risk-how-donors-should-engage-risk-financing-and-transfer-mechanisms.

[18] Poole, L. (2014) *A Calculated Risk: How Donors Should Engage with Risk Financing and Transfer Mechanisms.* Humanitarian Outcomes. [online] Available at: https://humanitarianoutcomes.org/publications/calculated-risk-how-donors-should-engage-risk-financing-and-transfer-mechanisms.

[19] United Nations OCHA (2023) *Global Humanitarian Overview: Response Plans – Results from 2023,* pp. 69–73. https://doi.org/10.18356/9789213587089c016.

[20] Glemarec, Y., Buchner, B., Gomez Echeverri, L., Fallone, M. and Swaminathan, S. Babinsky, F. (2024) *Seeking Synergy Solutions: A New Financial System to Enable Both Climate and SDG Action.* Expert Group on Climate and SDG Synergy [online] Available at: https://sdgs.un.org/sites/default/files/2024-07/Thematic%20Report%20on%20Finance-062824.pdf

[21] United Nations (2024) *Synergy Solutions for Climate and SDG Action: Bridging the Ambition Gap for the Future We Want.* [online] Available at: https://sdgs.un.org/publications/synergy-solutions-climate-and-sdg-action-bridging-ambition-gap-future-we-want-56106.

[22] Töpper, J. and Stadtmüller, D. (2022) *Smart Premium and Capital Support. InsuResilience Global Partnership.* [online] Available at: https://www.insuresilience.org/wp-content/uploads/2022/10/SMART-Premium-and-Capital-Support_Policy-Note-1.pdf.

[23] Hill, R.V., Gajate-Garrido, G., Phily, C. and Dalal, A. (2014) Using Subsidies for Inclusive Insurance: Lessons from Agriculture and Health. ILO Microinsurance Paper No.29. [online] Available at: www.impactinsurance.org/sites/default/files/MP29.pdf.

[24] Wagner, K.R.H. (2022) 'Designing Insurance for Climate Change', *Nature Climate Change.* https://doi.org/10.1038/s41558-022-01514-2.

[25] European Insurance and Occupational Pensions Authority (2023) *Policy Measures to Reduce Climate-related Insurance Protection Gaps.* [online] Available at: www.eiopa.europa.eu/publications/policy-measures-reduce-climate-related-insurance-protection-gaps_en.

[26] OECD (2024) *Fostering Catastrophe Bond Markets in Asia and the Pacific.* [online] Available at: www.oecd.org/en/publications/fostering-catastrophe-bond-markets-in-asia-and-the-pacific_ab1e49ef-en.html.

[27] InsuResilience Global Partnership Secretariat (2019) *Concessional Support for Climate and Disaster Risk Finance and Insurance.* [online] Available at: www.insuresilience.org/publication/concessional-support-for-climate-and-disaster-risk-finance-and-insurance/

[28] Paragraph 12 of the preamble of the Constitution of 27 October 1946, which states: "The Nation declares all French citizens to be equal and united in solidarity when faced with loss resulting from natural disasters"

[29] EIOPA (2024) EIOPA and ECB Joint Paper: *Towards a European System for Natural Catastrophe Risk Management.* [online] Available at: www.eiopa.europa.eu/publications/eiopa-and-ecb-joint-paper-towards-european-system-natural-catastrophe-risk-management_en.

[30] World Bank (2017) *Sovereign Catastrophe Risk Pools (Vol. 2 of 2): World Bank Technical Contribution to the G20.* Washington, D.C.: World Bank Group. Available at: http://documents.worldbank.org/curated/en/837001502870999632.

[31] United Nations Office for Disaster Risk Reduction (2015) *Sendai Framework for Disaster Risk Reduction 2015–2030.* Para 17. [online] Available at: www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030.

[32] Gahlot, S., Gray, C. and Race, P. (2024) *Resilience or Rebuild? The Costs and Benefits of Climate Adaptation Measures for Flood, 8 November*. [online] Swiss Re. Available at: www.swissre.com/dam/jcr:8b22bdc2-7330-4952-9c5c-95da8a6094be/swiss-re-institute-expertise-publication-climate-adaptation-resilience-rebuild.pdf.

[33] European Investment Bank (2024) *The EIB Climate Survey 2024.* [online] Available at: www.eib.org/en/surveys/climate-survey/index.

[34] U.S. Chamber of Commerce, Allstate and U.S. Chamber of Commerce Foundation (2024) *The preparedness payoff: The economic benefits of investing in climate resilience. 2024 Climate Resiliency Report.* [online] Available at: www.uschamber.com/assets/documents/USCC_2024_Allstate_Climate_Resiliency_Report.pdf.

[35] ICMIF and UNDRR (2021) *From Protection to Prevention: The Role of Cooperative and Mutual Insurance in Disaster Risk Reduction.* [online] International Cooperative and Mutual Insurance Federation. Available at: www.icmif.org/undrr-icmif-report/.

[36] Insure our Future (2023) *2023 Scorecard on Insurance: Fifty years of Climate Future.* Available at: https://global.insure-our-future.com/50-years-of-climate-failure-2023-scorecard-on-insurance-fossil-fuels-and-the-climate-emergency/.

[37] Hallegatte, S. (2011) *How Economic Growth and Rational Decisions Can Make Disaster Losses Grow Faster Than Wealth.* [online] World Bank. Available at: https://documents1.worldbank.org/curated/en/459191468327344243/pdf/WPS5617.pdf.

[38] O'Connor, J. et al. (2023) *Uninsurable Future.* UNU-EHS. [online] Available at: https://collections.unu.edu/view/UNU:9297

[39] Coalition for Climate Resilient Investment (2021) *The Physical Climate Risk Assessment Methodology (PCRAM): Guidelines for Integrating Physical Climate Risks in Infrastructure Investment Appraisal.*

[40] Suncorp Group (2020) *Protecting the North.* [online] Available at: www.suncorpgroup.com.au/corporate-responsibility/sustainable-growth/protecting-the-north

[41] OECD (2021) *Enhancing Financial Protection Against Catastrophe Risks: The Role of Catastrophe Risk Insurance Programmes.* Paris: OECD Publishing. https://doi.org/10.1787/338ba23d-en.

[42] Menéndez, P. et al. (2020) 'The Global Flood Protection Benefits of Mangroves', *Scientific Reports,* 10(1). https://doi.org/10.1038/s41598-020-61136-6.

[43] EIOPA (2023) *Policy Measures to Reduce Climate-Related Insurance Protection Gaps.* [online] Available at: www.eiopa.europa.eu/publications/policy-measures-reduce-climate-related-insurance-protection-gaps_en.

[44] Merry, A. and Calderon, J. (2024) *The Landscape of Microinsurance 2023.* [online] Available at: https://sdgfinance.undp.org/sites/default/files/2024-08/2023_Landscape_of_Microinsurance_EN_VF_8ef2acc75c.pdf.

[45] WFP (2023) *Linking Disaster Risk Financing with Social Protection: An Overview of Concepts and Considerations.* [online] Available at: www.wfp.org/publications/linking-disaster-risk-financing-social-protection-overview-concepts-and-considerations.

[46] UNDP (2022) *UNDP's Social Protection Offer 2.0.* [online] United Nations Development Programme. Available at: www.undp.org/publications/undps-social-protection-offer-20.

[47] International Labour Organization (2021) *World Social Protection Report 2020–22: Social Protection at the Crossroads – In Pursuit of a Better Future.* [online] ILO. Available at: www.ilo.org/publications/flagship-reports/world-social-protection-report-2020-22-social-protection-crossroads-pursuit.

[48] Scott, Z. (2021) *How Disaster Risk Finance Can Link with Social Protection: Maximising the Effectiveness of Shock Response.* Social Protection Approaches to COVID-19 Expert Advice Service (SPACE), DAI Global UK Ltd.

[49] WFP (2023) *Linking Disaster Risk Financing with Social Protection: An Overview of Concepts and Considerations.* [online] Available at: www.wfp.org/publications/linking-disaster-risk-financing-social-protection-overview-concepts-and-considerations.

[50] Established in 2017, the Center for Disaster Protection provides technical assistance on disaster risk financing. Established in 2010, the Disaster Risk Financing and Insurance Programme is a joint initiative of the World bank and the Global Facility for Disaster Reduction and Recovery. It assists governments in implementing financial protection strategies. Launched in 2022, the Global Shield against Climate Risks is a joint G7/V20 initiative to provide and facilitate more and better pre-arranged protection for vulnerable people and countries. Established in 2015, the Insurance Development Forum is a multi-stakeholder partnership facilitator to optimize the use of insurance and related risk management capacities to build greater resilience and protection. The Microinsurance Network works with public and private sector organizations to provide risk management solutions to low-income customers.

[51] Lane, G. (2024) 'Adapting to Climate Risk with Guaranteed Credit: Evidence from Bangladesh', *Econometrica,* 92(2), pp. 355–386. https://doi.org/10.3982/ecta19127.

[52] Hall, L. and Walsh, P. (2025) I*nsurance and Sustainable Development: Partnering on Risk, Resilience, and Transformation.* Dublin: SDN Academy, Dublin University Press. https://doi.org/10.25546/111474.

[53] Holdren, J., Bierbaum, R.M., MacCracken, M.C., Moss, R.H. and Raven, P.H. (2007) *Confronting Climate Change: Avoiding the Unmanageable and Managing the Unavoidable.* Sigma Xi and the United Nations Foundation.

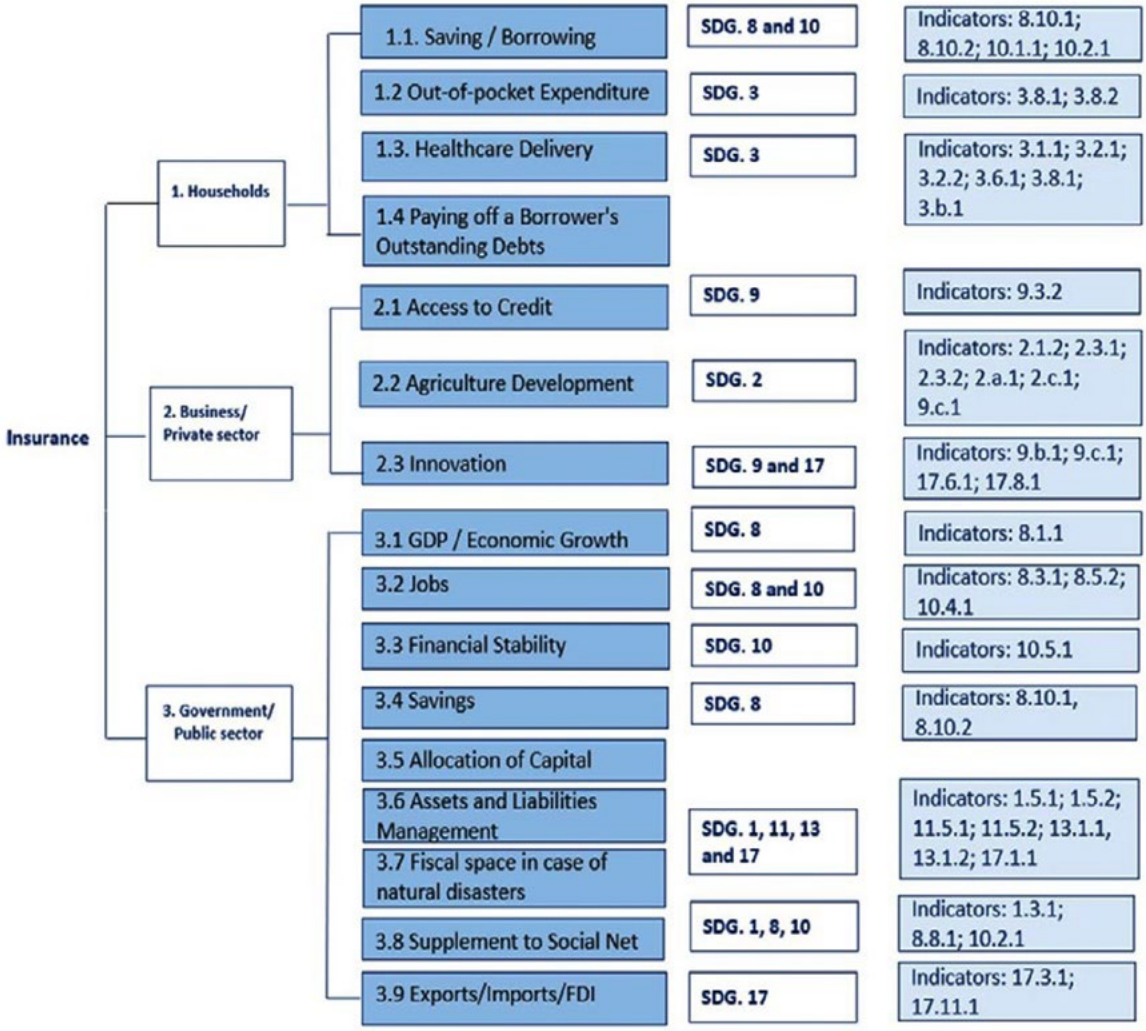
[54] Holliday, S., Remizova, I. and Stewart, F. (2021) *The Insurance Sector's Contribution to the Sustainable Development Goals (SDGs).* [online] World Bank. Available at: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/560821632197166715/the-insurance-sector-s-contribution-to-the-sustainable-development-goals-sdgs.

[55] Hall, L. and Walsh, P. (2025) *Insurance and Sustainable Development: Partnering on Risk, Resilience, and Transformation.* Dublin: SDN Academy, Dublin University Press. https://doi.org/10.25546/111474.

Annex I: Contribution of the Insurance sector to the SDGs

The insurance sector can contribute to the achievement of SGDs through the three main transmission mechanisms: through households, through the private sector, and through the public sector. In turn, each of these routes can have an impact on multiple SDGs. For example, for households, insurance can help with saving and borrowing (SDG 8 and 10), healthcare delivery and decreasing out-of-pocket expenditure (SDG 3); for businesses insurance can solve issues with access to credit (SDG 9), agriculture development (SDG 2), innovation (SDG 9 and 17); whilst for governments, insurance contributes to economic growth (SDG 8), jobs and employment (SDG 8 and 10), financial stability (SDG 10), savings (SDG 8), as well as creating fiscal space in case of natural disasters (SDG 1; 11; 13; 17), playing a role as a supplement to social nets (SDG 1; 8; 10), attracting foreign direct investments and facilitate export-import operations (SDG 17).

FIGURE A1



Source: Holliday S., Remizova I. and Stewart F. (2021): The Insurance Sector's Contribution to the Sustainable Development Goals (SDGs), World Bank.

About the Expert Group on Climate and SDG Synergy

CO-CONVENED BY

United Nations | Department of Economic and Social Affairs

United Nations Framework Convention on Climate Change

This report is part of the Synergy Solutions 2025 series, comprising three Thematic Reports and will contribute to the final Synthesis Report, which will be launched in September 2025. Together, this constitutes the 2025 edition of the Global Report led by the Expert Group on Climate and SDG Synergy.

The Expert Group was co-convened by the United Nations Department of Economic and Social Affairs (UNDESA) and the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat in May 2023, and has evolved from an original composition of 14 experts to its current collaboration between 17 renowned experts from diverse thematic and geographic backgrounds. The Group provides up-to-date analysis and recommendations on how to tackle climate and SDG action in synergy, based on scientific evidence and innovative approaches. Its experts are composed as follows:

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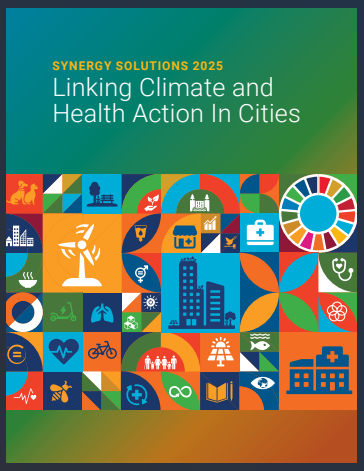

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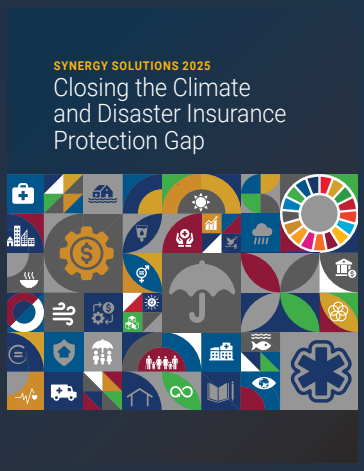

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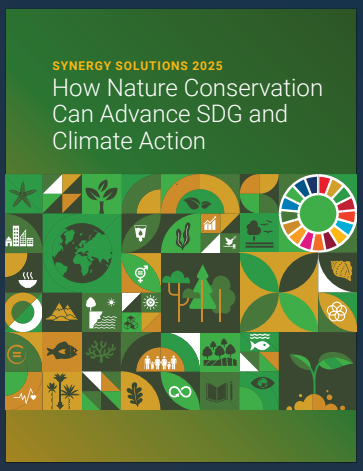

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